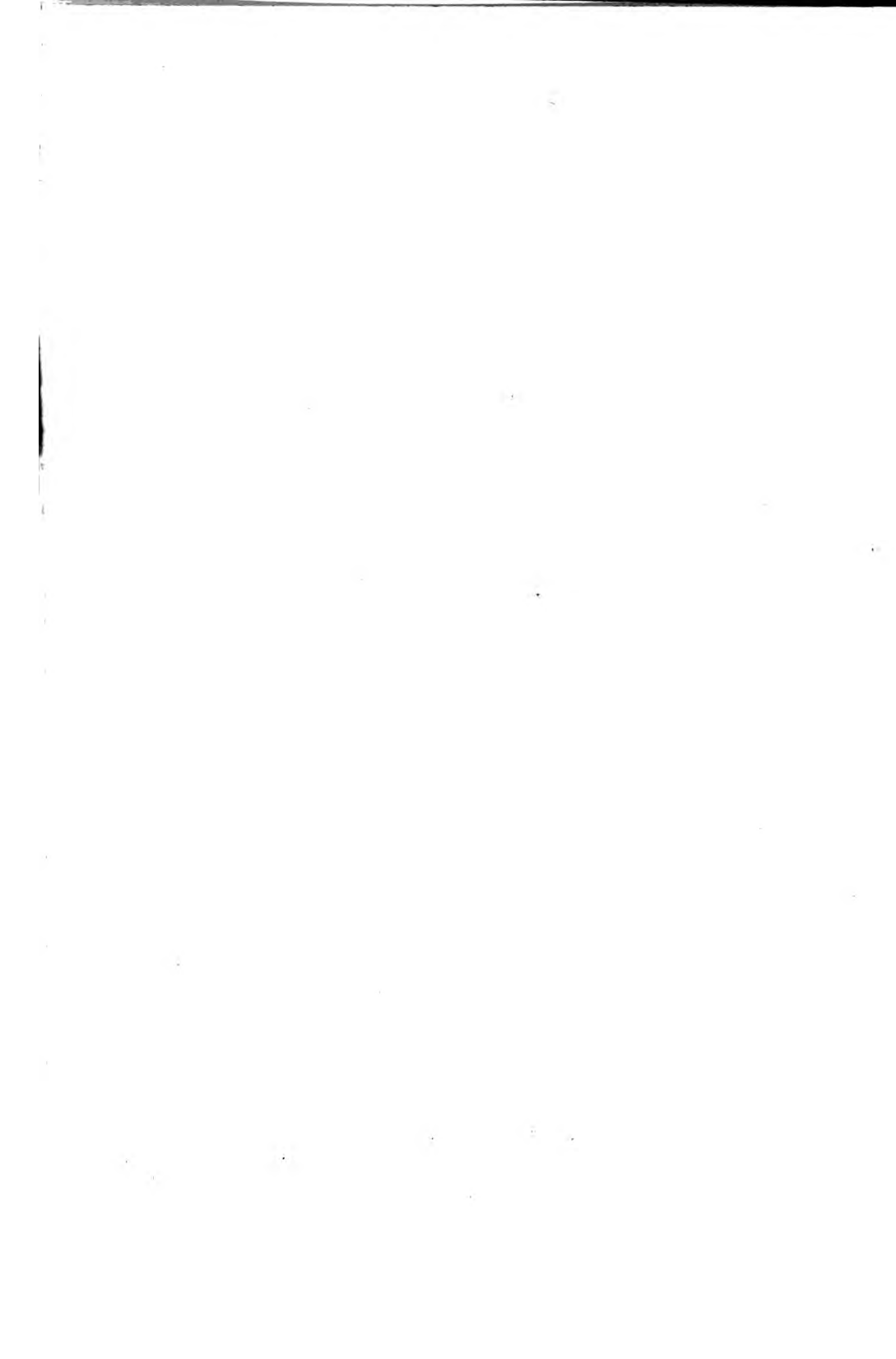




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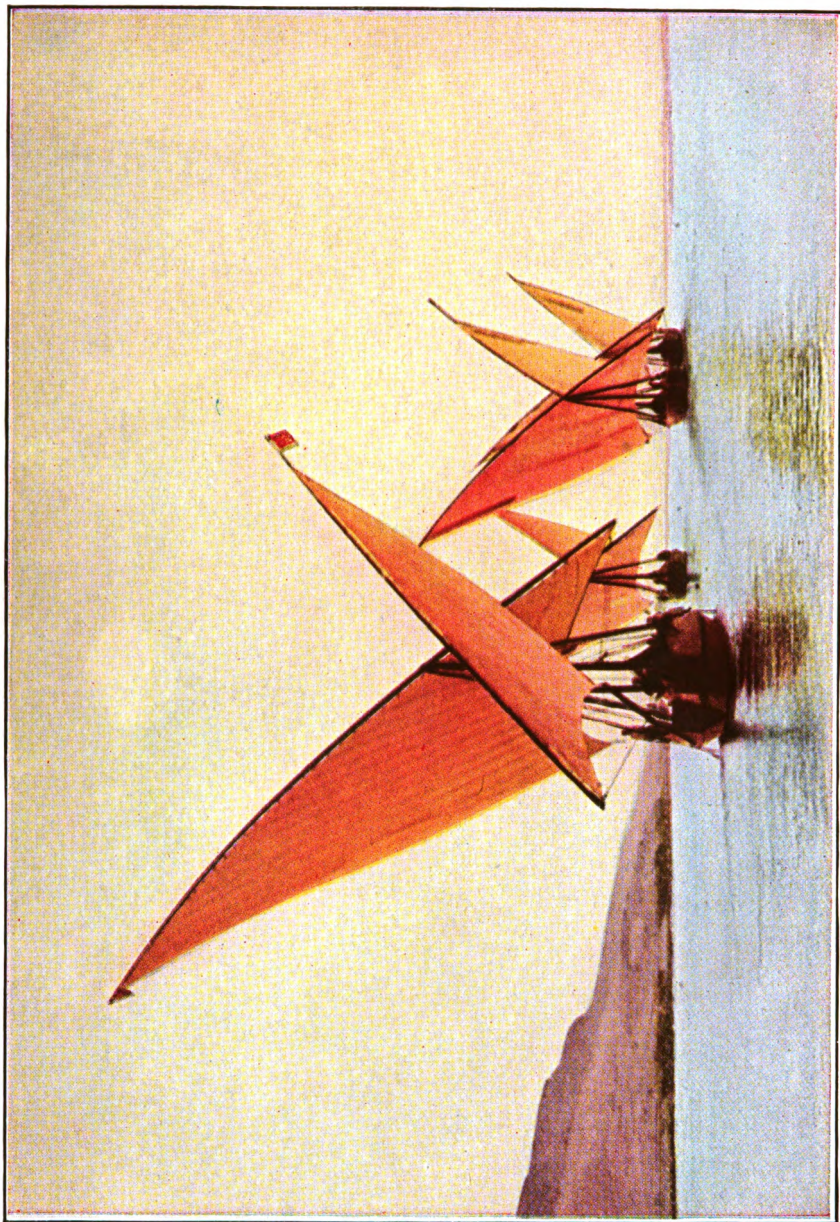












SCENE ON THE EGYPTIAN NILE

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431 So. Dearborn St., CHICAGO

Printed in U. S. A.  
1933



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eign pharmaceutical and medical bodies, and author of "Remington's Practice of Pharmacy."

**Remiremont**, a town of E. France, on the Moselle, a mile below its junction with the Moselotte, 17 miles from Epinal; is surrounded by forest-clad mountains, and commanded by Fort Parmont, one of the Moselle line of defensive works. It was attacked by the French in 1638, ruined by an earthquake in 1682, and became a part of France in 1766. It now has important manufactures. The parish church was formerly a famous abbey. Pop. about 10,000.

**Remittent Fever**, one of the varieties of fever arising from malaria or marsh poison—one being intermittent fever, or ague. In its milder forms it scarcely differs from severe intermittent fever; while in its more serious form it may approximate closely to yellow fever.

**Remonstrance, The Grand**, in English history, a remonstrance consisting of 206 articles, condemning the arbitrary procedure of Charles I. It was carried in the House of Commons, Nov. 22, 1641, by a majority of 11, and presented to the king Dec. 1.

**Remonstrants**, a name given to the Dutch Protestants, who, after the death of Arminius (A. D. 1609) continued to maintain his views, and in 1610 presented to the States of Holland, at Friesland, a remonstrance in five articles formulating their points of departure from Calvinism. The Remonstrants still form a small but liberal and scholarly sect in Holland.

**Remora**, the sucking-fish, or sucker. By means of the suckorial disk, a transformation of the spinous dorsal fin, the species can attach themselves to any flat surface. The adhesion is so strong that the fish can be dislodged only with difficulty, unless pushed forward with a sliding motion. Being bad swimmers, they attach themselves to vessels, or to animals having greater power of locomotion than themselves; but they cannot be regarded as parasites, as they do not obtain their food at the expense of their host.

**Remsen, Ira**, an American chemist; born in New York city, Feb. 10,

1846; was graduated at the College of the City of New York in 1865, and later at the College of Physicians and Surgeons, and at the University of Gottingen; was Professor of Chemistry at Williams College in 1872-1876; founded the "American Chemical Journal" in 1879. He is a member of many scientific organizations and societies; and the author of numerous textbooks including "The Principles of Theoretical Chemistry"; "Inorganic Chemistry"; "Chemical Experiments"; etc.; became Professor of Chemistry at Johns Hopkins University in 1876, and succeeded Dr. Daniel Coit Gilman as president there in 1901.

**Remus**, the twin brother of Romulus, who was the fabled founder of Rome. According to the old myth, Romulus killed his brother.

**Renaissance**, a name given to the great intellectual movement which marks the transition from the Middle Ages to the modern world. It was a change in attitude of mind and ideal of life, in philosophy, art, literary criticism, political and religious thought. Substantially a revolt against the dogmatism of the Middle Ages, the new spirit claimed the entire liberation of reason, and passionately recognizing and studying the rich humanity of Greece and Rome, aimed at a complete rehabilitation of the human spirit with all the free activities and arts and graces. To the same impulse belonged also the invention of printing and multiplication of books, new methods of paper making, the use of the mariner's compass, the discovery of America, and the exploration of the Indian Sea. No definite date can be given for the beginning of the Renaissance. Long before the close of the Dark Ages there were isolated scholars and thinkers who anticipated the new light. In its main elements the movement originated in Italy toward the end of the 14th century, and, attaining its full development there in the earlier half of the 16th.

**Renaix (Flem. RONSSE)**, a town of Belgium in E. Flanders, E. of the Schelde river, and 21 miles S. W. of Ghent; has extensive dye works, large bleaching grounds, and manufactures of textiles and tobacco. Pop. 21,000.

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**Renan, Joseph Ernest**, a French writer; born in Treguier, France, Feb. 27, 1823. In 1862 he was appointed Professor of Hebrew, Chaldee, and Syriac in the College de France, but the skeptical views manifested in his "Life of Jesus" (1863), raised an outcry against him, and he was removed from his chair, to be restored again, however, in 1871. This work was the first part of a comprehensive work on the "History of the Origins of Christianity," written from the standpoint of one who disbelieves in the supernatural claims of Christianity. He died Oct. 2, 1892.

**Rennes**, a city of France, capital of the Department of Ille-et-Vallaine, and former capital of the Province of Brittany; at the junction of the Ille and Vallaine rivers, 60 miles N. of Nantes, 51 miles S. E. of St. Malo, and 234 miles S. W. of Paris. Although a very ancient city, a great fire in 1720 led to its being thoroughly modernized. The archbishop's palace dates from 1672, and the courthouse from 1618-54. The second court-martial of Captain Dreyfus and his acquittal occurred here in 1899. The city has extensive manufactures and considerable trade. Pop. (1926 Est.) 83,418.

**Reno**, the most important city in Nevada, in Washoe county, on the Truckee river, 30 miles N. of Carson City. It is principally engaged in agriculture, stock-raising, and mining, and contains the State University, State Hospital for Mental Diseases, and U. S. Agricultural Station. It has been noted as a place of temporary residence of persons seeking divorces. Pop. (1930) 18,529.

**Reno, Jesse Lee**, an American military officer; born in Wheeling, W. Va., June 20, 1823; was graduated at the United States Military Academy in 1846; served with distinction in the Mexican War. In November, 1861, he was appointed Brigadier-General of volunteers; distinguished himself at the capture of Roanoke Island and in the engagements at Newbern and Camden; was promoted Major-General of volunteers in July, 1862; and was present in the actions at Manassas and Chantilly. He was killed at South Mountain, Md., on Sept. 14, 1862, while leading a charge.

**Reno, Jesse Wilford**, an American inventor; born in Fort Leavenworth, Kan., Aug. 4, 1861; son of Maj.-Gen. Jesse L. Reno; was graduated at Lehigh University in 1883 and afterward took a special course in mining and engineering; was engaged in mining in Colorado in 1885-1890. He invented an inclined elevator or moving stairway in 1892, which has since been largely introduced in department stores, etc.

**Reno, Marcus A.**, an American military officer; born in Illinois about 1835; was graduated at the United States Military Academy, and was appointed a brevet 2d lieutenant in the 1st Dragoons in 1857. He was promoted colonel U. S. A., and Brigadier-General, U. S. V., for meritorious services during the war, in 1865; and was dismissed from the service April 1, 1880. In 1876 he took part in the campaign against the Sioux Indians, under Sitting Bull, as second in command of his regiment, in which Gen. George A. Custer and nearly all of the regiment were killed. For failing to support his comrades in the fight and for other serious charges he was dismissed from the service. He died in Washington, D. C., March 31, 1889. Reno's bravery was undoubted, and by many his dismissal is regarded as unjust.

**Renwick, James**, an American author and physicist; born in Liverpool, England, May 30, 1792; was graduated at Columbia College, New York, in 1807. In 1820 he was made Professor of Chemistry and Physics in that college, a position he held till 1853. In 1838 he was appointed by the United States government one of the commissioners to explore the line of the boundary between Maine and New Brunswick. He wrote, besides smaller text-books and translations, "Treatise on the Steam Engine"; several books on mechanics, and biographies of De Witt Clinton, Jay and Hamilton, and others. He died Jan. 12, 1863.

**Renwick, James**, an American architect; born in New York city, Nov. 3, 1818; son of the preceding; was graduated at Columbia College in 1836; first engaged in civil engineering; but later devoted himself to architecture. Among the many build-

## Reparations

ings which he planned are Grace Church, New York city, completed in 1845; the Smithsonian Institution and the Corcoran Art Gallery, in Washington, D. C.; the Vassar College buildings in Poughkeepsie, N. Y.; the Young Men's Christian Association and St. Patrick's Cathedral (R. C.), in New York city. He died in New York city, June 23, 1895.

**Reparations**, a term employed to denote the penalties imposed upon Germany and her allies as the defeated belligerents of World War of 1914-1918. See APPENDIX.

**Replevin**, a personal action which lies to recover possession of goods or chattels wrongfully taken or detained, upon giving security to try the right to them in a court of law, and to return them if the suit is determined against the plaintiff. Originally a remedy peculiar to cases of wrongful distress, it is now applicable to all cases of wrongful taking or detention. Also the writ by which goods and chattels are replevined.

**Replica**, in the fine arts, the copy of a picture, etc., made by the artist who executed the original.

**Reporting**, an important branch of journalism; the act, system, or practice of making reports of meetings, debates, or the like.

The methods of newspaper reporting in the United States have been developed to a degree of the greatest efficiency. A first-class reporter commands higher pay than most editors, and some of the articles which appear in the daily press are equal, or superior in descriptive power to the best efforts of well known authors. American reporters have also done honorable and able detective work in saving the innocent and bringing the guilty to punishment. The rapidity with which reports of speeches, meetings, notable incidents, etc., are furnished to the press is something almost incredible to the uninitiated. The various press associations of the country are the principal factors in the work of disseminating the results of reportorial work. See JOURNALISM.

**Repousse**, a term applied to a kind of ornamental metal work, formed in relief by striking on the metal from behind with a punch or hammer till

## Representatives

the required forms are roughly produced in relief on the surface; the work is then finished by the process of chasing. The work of Benvenuto Cellini (1500-1570), in this branch of art, is the most celebrated. Common work of this kind, as for tea or coffee pots, is executed in pewter and Britannia metal, and then electrotyped.

**Repplier, Agnes**, an American essayist; born in Philadelphia in 1859. Her published works include: "Books and Men"; "Points of View"; "Essays in Miniature"; "Philadelphia: the Place and the People"; etc. She has also compiled a "Book of Famous Verse."

**Representative**, an individual standing as a type. The representative theory contended for by Swainson and other quaternarians was that in each circle particular types were represented. In every circle of birds, for instance, there were raptorial, insectivorous, rasorial, grallatorial, and natorial types. Any representative of these was analogous to the corresponding type in all other circles.

**Representatives, House of**, one of the branches of the Congress, also known as the Lower House. The members of this branch are elected directly by popular vote. In it is vested by the National Constitution the sole right to originate laws concerning the finances of the country. The Committee on Ways and Means of the House is the original source of all tariff legislation, and all bills providing for the raising or expenditure of public moneys have their origin in the House. In each of these two forms of legislation the House has the limited cooperation of the Senate, viz., the Senate may amend a tariff bill or resolution appropriating public moneys in the line either of increasing or decreasing specific amounts. The House has the privilege of passing on these Senate amendments, and if it declines to accept any part of such changes, it is customary to appoint a Conference Committee consisting of an equal number of members from the House and Senate, to whom the disputed subject is referred, and the report of this committee is generally accepted in the light of a compromise by both houses. The membership of the House

## Representative Gov't

is based on the population of the country as ascertained decennially by the census, and therefore changes every ten years.

**Representative Government**, that form of government in which either the whole of a nation, or that portion of it whose superior intelligence affords a sufficient guarantee for the proper exercise of the privilege, is called on to elect representatives or deputies charged with the power of controlling the public expenditure, imposing taxes, and assisting the executive in enforcing the laws.

**Reprieve**, the suspension or delay of the carrying out of a sentence generally of death) on a prisoner. It is popularly but erroneously supposed to signify a permanent remission, or commutation of a capital sentence.

**Reprise**, in maritime law, a ship recaptured from an enemy or pirate. If recaptured within 24 hours of her capture she must be restored to her owners in whole; if after that period, she is lawful prize of her captors.

**Reproduction**, the term applied to the whole process whereby life is continued from generation to generation. The simplest forms of reproduction are found among the single-celled plants and animals. There we may find an organism like *Schizogones*, multiplying by breakage, reproducing by rupture, presumably when the cell has overgrown its normal size; in others numerous buds are liberated at once, as in *Arcella* and *Pelomyxa*; in many, familiarly in the yeast plant, one bud is formed at a time; in most the cell divides into two or many daughter cells. The formation of many daughter cells or spores is little more than ordinary division taking place repeatedly in rapid succession, and within the substance of the parent cell—in other words, in limited time and space.

It has been shown that reproduction begins among single-celled organisms in a kind of rupture; but even among the more complex forms of life an equally crude mode of reproduction sometimes occurs. The cast-off arm of a starfish may regrow the entire animal with a readiness that suggests a habit; some kinds of worms (e. g., *Nemerteans*) break into pieces, each

## Reproduction

of which is able regrow the whole; large pieces of a sea anemone or of a sponge are sometimes separated off and form new organisms. It is easy to show experimentally that parts cut from a hydra, a sponge, or a sea anemone, from a seaweed, a moss, or a tree, may in certain conditions grow into an entire organism.

But the usual mode of asexual reproduction is by the formation of definite buds. When these buds remain continuous, colonial organisms result, like many sponges, most hydroids, Siphonophora like the Portuguese man-of-war, many corals, almost all the Polyzoa, and many Tunicates. The runners of a strawberry and the suckers which grow around a rose bush illustrate the same state.

Sexual reproduction in its fully differentiated form involves (a) the distinctness of two parent organisms, (b) the formation of two different kinds of reproductive elements—e. g. spermatozoa produced by the male and ova by the female, and (c) the fertilization of the egg cell by a male element. Moreover, the process of sexual reproduction also includes the sexual union of the two parents, or some provision of nature by which the perfect fertilization of the ovum is secured. In some cases the fertilized ovum develops in organic relation with the mother organism, from which it is eventually separated as an embryo. But, while many organisms exhibit fully differentiated sexual reproduction, and while the essentials of the process are always the same, there are not a few important variations in detail.

Reproductive maturity—the blossoming of the individual life—occurs about the time when growth ceases. In the lower animals sexual maturity is attained relatively sooner than in the higher forms; but there are many strange cases of precocious and retarded reproduction. The physiology of reproduction must take account of that profound reaction which affects the whole system as sexual maturity is attained, of the various ways in which the reproductive elements are separated from the parents, of the relation which, alike in plant and animal, may be established between the fertilized egg cell and the mother or-

## Reptilia

ganism, and of the way in which an embryo thus nurtured eventually becomes independent. Moreover, there are often highly evolved psychical activities associated with reproduction—notably the love between mates and between parents and offspring.

**Reptilia**, reptiles; cold-blooded, oviparous, or ovoviviparous, vertebrate animals having the skin covered with scales or scutes; heart with two auricles, ventricular chamber incompletely divided. Respiration takes place by lungs, respiratory movements being slow and irregular. Intestinal tract and urogenital organs open into a common cloaca. When the appendicular parts of the skeleton are present, the sternum is never replaced by membrane bone, and the posterior sternal ribs are attached to a median prolongation of the sternum. The metatarsal bones are not ankylosed among themselves or with the distal tarsal bone. The fetus is inclosed in an amnion and allantois, and nourished from the vitellus.

The first appearance of reptiles is believed to be indicated by remains of a marine Saurian of Carboniferous age. *Proterosauros* is found in the Permian. In Mesozoic times the reptilian type appears in such variety and in such a high state of development that this era has been distinguished as the Reptilian age. In the Trias large marine Saurians and Dinosaurs are met with; more gigantic forms were developed in the Jurassic period; and the class attained its highest culmination in the Chalk.

**Republic**, a commonwealth; a form of political constitution in which the supreme power is vested, not in an hereditary ruler, but in the hands either of certain privileged members of the community or of the whole community. Theoretically, the purest and most perfect form of a republic is a state in which all the members of the community meet in public assembly to enact laws, and transact all other national business. Such a system is, however, practicable only in very small states. Therefore it has given way in all modern republics to the representative system—that is, one in which the supreme power is vested in rulers chosen periodically by and from the whole body of the people, or

## Republican Party

by their representatives assembled in a congress or national assembly, as in the present French republic. The republics of Venice and Genoa were exclusive oligarchies, the supreme power being vested in the nobles or a few privileged persons. The republics of the United States and Switzerland are federal republics—that is, composed of a number of separate states bound together by compact, subject to a central government for all national purposes, but having powers of self-government in matters affecting individual states.

**Republican Party**, one of the two great political parties in the United States. The term Republican has had at different times, different significations. In 1792 a faction of the Anti-Federalists, advocating more direct control of the government by the people, further restriction of supreme authority, and a stronger emphasis of States Rights, began to be known as the Republican Party. This party was increased by numbers of voters who called themselves Democrats on account of their sympathy with the French Jacobins. The combination was known officially as the Democratic-Republican party. Those members having centralizing tendencies having seceded, the term Democratic was alone retained. This name, as the title of a National party was first used in 1825, the election of 1828 being the first in which it appeared, at that time opposing the original holders of the name. The name Republican, as the title of a party went out of use after the election of 1824, but was resumed in 1856, during the administration of Mr. Pierce (1853-1857). Its platform rested mainly on the prohibition of slavery in the Territories, declaring that freedom was the public law of the national domain; the prohibition of polygamy, which it classed with slavery as "the twin relic of barbarism"; and the admission of Kansas as a free State. In 1856 the party fairly divided the country with its Democratic competitor. In June of that year its convention met at Philadelphia and nominated John C. Fremont for President. Mr. Buchanan, the Democratic candidate was elected, 11 of the States voting for General Fremont. The decision in the Dred

Scott Case and the progress of events in Kansas greatly strengthened the party, and after the divisions among the Democrats over the same question the success of the Republicans was assured. In 1860 the party elected Abraham Lincoln President, who received the electoral votes of the free States except New Jersey. On the announcement of his election the Southern States prepared to secede, South Carolina leading, followed by 10 others. Mr. Lincoln was inaugurated March 4, 1861. He asserted that there was no right to interfere with slavery in the United States where it existed, and acknowledged that of the reclamation of fugitive slaves; but he expressed his determination to execute the laws and protect public property. The conduct of the Civil War was in the hands of the Republican party, though northern Democrats formed a large proportion of the Union army.

In 1864 Mr. Lincoln was unanimously nominated by the Republicans, and was reelected by an overwhelming majority. On the 14th of April, 1865, Mr. Lincoln was assassinated, and died the next day. Andrew Johnson, the Vice-President, immediately succeeded him, and continued his cabinet. Mr. Johnson had been a loyal Union man of Tennessee and was chosen in view of the reconstruction of the South. He soon disagreed with the party and came into actual conflict with Congress. He was impeached March 23, 1868, but acquitted May 16, and 26 for lack of a vote of two-thirds for conviction. Chief-Justice Chase presided at this trial. In 1868 Ulysses S. Grant was elected President. His election was urged on the ground that the Republican party, having successfully finished the war, maintained public credit, abolished slavery, and secured liberty, was the proper one to carry on the government. General Grant was chosen for a second term by a largely increased electoral vote, and was succeeded by R. B. Hayes in 1876, the election of the latter being declared by the electoral commission (q. v.). James A. Garfield was elected President, and died Sept. 19, 1881, from wounds inflicted July 2, and Chester A. Arthur, the Vice-President, took his place. In 1884 there arose a considerable defection from

the party ranks many declining to vote for James G. Blaine, the regular nominee. As a result Grover Cleveland, the Democratic candidate was chosen. In 1888 the party again triumphed in the National election, Benjamin Harrison defeating Grover Cleveland on the tariff issue. In 1892 the party was defeated by the second election of Grover Cleveland and a Democratic Congress. In 1894 it again came into power in Congress by signal majorities carrying even Kentucky and other Democratic strongholds; and in 1896 regained all branches of the government by the election of William McKinley, who was re-elected in 1900. On his assassination, Sept. 14, 1901, he was succeeded by Theodore Roosevelt, Vice-President, who was elected President in 1904 by an overwhelming majority, defeating Alton B. Parker, the Democratic candidate.

In 1908 the Republican Party was again successful in electing its candidate, William H. Taft, who defeated the Democratic nominee, William Jennings Bryan, who had been named for the third time by that party. President Taft's first official act was to summon Congress in extra session to deal with several important subjects. During the session, which closed June 25, 1910, Congress passed a new tariff bill; placed railroad rate making, and telegraph and telephone companies under government control; imposed a special tax on corporations; created a Commerce Court; adopted a postal telegraph bill; authorized the admission of Arizona and New Mexico into the Union; created a bureau of mines; and established rigid rules for the prevention of collisions at sea. The party suffered heavy defeat throughout the country in 1910, when the Democratic party secured control of the National House of Representatives. Later notable events of this administration were the attempts to negotiate a reciprocal trade agreement with Canada and a general arbitration treaty with Great Britain and France; the passage of a Panama Canal bill, in which American shipping was especially favored, and under which Great Britain filed two protests; intervention in Nicaragua to suppress the revolution of 1912; the visit of Secretary of



State Knox to the Central American republics and to Japan as special ambassador at the funeral of the Mikado; the employment of the army along the Rio Grande to safeguard American lives and property against the Mexican revolutionists; and the revolt in the Republican party, leading to the organization of the Progressive Party (q. v.) and its nomination of former Presidents Roosevelt (see Roosevelt, Theodore, and Taft, William Howard). Both of these candidates were defeated by the Democratic candidate, Gov. Woodrow Wilson, of New Jersey, in the election of 1912.

In 1916 the party practically forced its nomination on Charles E. Hughes, Associate Justice of the U. S. Supreme Court, and the Democrats renominated President Wilson, with the result that the latter was re-elected by 277 electoral and 9,172,561 popular votes to 254 electoral and 8,537,684 popular votes for the former.

In 1920 the Republican Party nominated Warren G. Harding who was elected over Cox, Democrat, by 404 electoral votes to 127. In 1924 Calvin Coolidge, Republican candidate, received 382 electoral votes to 136 for Davis, Democrat.

In 1928 the Republican Party nominated former Secretary of Commerce Herbert Hoover, who won over the Democrat "Al" Smith by a plurality of 357 electoral votes. Curtis was elected Vice-President.

**Reservoir**, an artificial basin in which a large quantity of water is stored. The construction of a reservoir often requires great engineering skill. In the selection of a site the great object should be to choose a position which will give the means for collecting a large supply of rainfall with as little recourse as possible to artificial structures or excavations. Reservoirs in which the dams are built of earthwork must be provided with a waste weir, to admit of the surplus water flowing over; in the reservoirs of which the dams are built of masonry there is no necessity for a waste weir, as then the water may be allowed to overflow the wall, there being no fear of its endangering the works. The outlet at the bottom, by which the water to be used is drawn

off from the reservoir, may consist either of a tunnel, culvert, or iron pipes provided with suitable sluices. A vast system of reservoirs, called "tanks," exists in India, constructed for purposes of irrigation. The reservoirs on the irrigation canals of Spain are all of masonry; they are circular or polygonal in shape, and the interior face of the wall, which is constructed of large ashlar, is vertical. In France, Italy, and particularly in England, the preference is given to earthen dams. Distributing reservoirs for towns are generally built of masonry, but are sometimes of cast iron or boiler plate. They are placed high enough to command the highest part of the town, and are capacious enough to contain at least half a day's supply, their chief use being to store the surplus water during the night. Some of the greatest reservoirs in the world are those connected with the new water supply system of New York city and the irrigation projects of the U. S. Government.

**Residence.** The length of time which a person shall remain within the limits of a State in order to give him a legal residence there, varies in the different commonwealths, each government being the judge of the qualifications necessary to entitle a denizen to claim permanent residence within its boundaries. An alien who desires to become a naturalized citizen of the United States must prove a residence of five years in the country previous to admittance to the right of adoption.

**Resin, or Rosin**, a widely distributed class of vegetable substances, characterized by being insoluble in water, soluble to different degrees in alcohol, ether, and liquid hydrocarbons, softening or melting at a moderate heat, and at a higher temperature burning with a smoky, luminous flame. In the crude condition they form amorphous masses, having a conchoidal fracture, and are, either neutral or acid. Some are employed in medicine, others in the preparation of varnishes, sealing wax, and similar substances. Resins are also constituents of the substances known as gum-resins, and of the medicinal preparations called balsams, as balsams of Peru and Tulu.

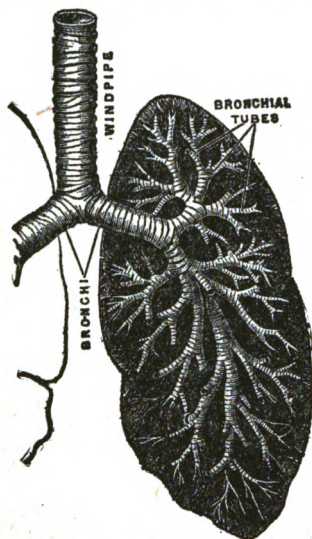


**Resonance, or Resonancy,** in acoustics, (1) Sound reflected by a surface less than 112.5 feet from the spot whence it originally traveled. The direct and the reflected sounds are confounded, but the one strengthens the other. Bare walls tend to be resonant; walls hung with tapestry are not so. (2) The increase of sound produced by a sounding board, or by the body of a musical instrument. In medicine, a more or less shrill sound heard by auscultation in the larynx or lungs of a person speaking, or of one affected with chest disease.

**Respiration,** a part of the life of all organisms, animal and vegetable. It is a series of chemical changes, the first of which is the absorption of oxygen into the body, and the last of

by the simple diffusion of oxygen into and of carbonic acid out of the blood through a thin membrane from and into the air or water in which the creature lives. The essential structure, therefore, of all breathing organs, lungs, gills, or tracheæ, must be the same: a thin membrane exposed on the one side to the oxygen-containing medium, air or water, in which the animal lives, on the other side to the blood flowing in a network of thin-walled vessels, so that the gases that have to pass in and out of the blood are only separated from the air or water from which and into which they have to pass by thin partitions—by the membranous wall of the breathing organ, and by the thin wall of the blood vessels.

The respiratory mechanism consists of the lungs, a series of minute air chambers with a network of capillaries in the wall, the air passages from the air chambers of the lungs to the outer air, and the chest walls with their muscles, which act like bellows and change the air in the lungs. Let us begin with the air passages. There are first the nose and mouth; these join the upper part of the gullet, known as the pharynx. From the pharynx arises the windpipe (trachea); this passes through the voice box (larynx) into the chest cavity; there it divides into two passages (the bronchi); the bronchi go on dividing again and again, generally into two; the ultimate divisions (the bronchioles) open into clusters of air chambers. The air chambers are about  $\frac{1}{100}$  inch in diameter. It has been estimated that there are some 725,000,000 of them, and that their total surface is about 2,000 square feet. The walls of the air chambers are formed of a thin membrane in which the blood and lymph capillaries ramify. Minute openings lead from the air chambers into the lymph spaces of the membrane. The membranous walls are partly formed of elastic tissue. It is this that gives to the lungs their elasticity. The larger air passages (trachea and bronchi) are kept open by horseshoe-shaped plates or cartilage; muscles stretch between the poles of the horseshoe, complete the ring, and permit the size of the passages to vary, at the same



THE TRACHEA (WINDPIPE), BRONCHI, AND ONE OF THE LUNGS IN SECTION.

which is the excretion of carbonic acid. The respiration of plants comes under the head of vegetable physiology, and the general relation of the function of respiration to the other bodily functions, under physiology.

In all animals which possess a blood stream the respiration is carried on

## Respiration

time resisting over-distention when the internal pressure rises. These larger air passages are lined by a mucous membrane, containing mucous glands; the innermost layer is a ciliated epithelium; the cilia lash upward, and thus keep the passages free from mucus and remove foreign particles. As the passages become smaller they lose their cartilages, and the muscles form a continuous circular layer.

The chest is an air-tight chamber enclosing the lungs and the heart. The walls of the chest are formed of bones (the ribs, sternum, and backbone) and muscles; the bones and muscles are so arranged that the size of the chest cavity can be altered. In this way the chest acts as a bellows and moves air in and out of the lungs. The ribs are sloped slightly downward, especially after an expiration; when an inspiration is taken certain muscles fix the upper ribs, and those muscles connecting the ribs to each other contract and the ribs are raised, and thus the size of the chest cavity is increased. At the same time a flat muscle called the diaphragm, which separates the chest cavity from the rest of the body cavity, and which after an expiration is arched upward (by the pressure of the abdominal viscera on it, the viscera in turn being pressed on by the abdominal walls), forcibly contracts, becomes flatter, and therefore enlarges the size of the chest cavity, forcing the abdominal viscera downward and causing the abdomen to protrude. In these two ways, then, the size of the chest cavity may be increased. The result of this enlargement is that the pressure of the air within the cavities of the lungs is lowered; air therefore from without rushes through the nostrils (one ought not to breathe through one's mouth) down the wind-pipe into the lungs, and thus a fresh supply of oxygen is introduced. The movements which produce this result are known as the inspiratory movements. In making an expiration the reverse effects are produced; the chest cavity is made smaller, the pressure of the air in the lungs increases, and some rushes out through the nostrils into the air till the pressures inside and outside are equalized. An ordi-

## Respiration

nary expiration is effected by the elasticity of the lungs, by the fall of the ribs, unsupported by the contraction of the muscles that caused an inspiratory movement, by the elasticity of the cartilages of the ribs which were twisted during inspiration, and by the elasticity of the abdominal wall which was forced outward by those viscera pushed downward by the diaphragm. An ordinary inspiration is therefore the result of a number of active muscular contractions, while an ordinary expiration is the result of mere passive elasticity of the parts concerned. The average amount of air, in the case of an individual five feet eight inches in height, that goes in and out of the lungs at each inspiration and expiration is about 20 cubic inches; this is called the tidal air. By means of forced inspiratory movements the ingoing tide may be increased by 120 cubic inches; by means of a forced expiration the outgoing tidal air may be increased by 90 cubic inches. After the most forced expiration possible there always remain within the lungs about 90 cubic inches of air. So that if we take as deep a breath as possible, and then make as forced an expiration as we can, we shall drive out  $120 + 20 + 90 = 230$  cubic inches of air. This is termed the respiratory capacity.

The ordinary respiratory movements differ in the two sexes and at different periods of life. In young children the chest is altered in size chiefly by the movements of the diaphragm, and the protrusion of the abdominal wall during inspiration is therefore very marked. In men also it is the diaphragm which is chiefly operative, but the ribs are also moved. In women it is the movement of the ribs, especially the upper ones, which is the most extensive. The respiratory rhythm is the relation of the acts of inspiration and expiration to each other as regards time. It may be expressed as follows: In.= 3, Ex.= 4, pause = 3. The number of respirations in a healthy person is about 14 or 18 per minute; it is greater (nearly double) in childhood. It varies according to circumstances, exercise, rest, health, disease, etc.; in disease it may fall as low as 7 or rise to 100 per minute.

**Respondent**, in law the designation of the party required to answer in a suit, particularly in a chancery suit.

**Rest**, a term applied to various kinds of supports; as, a support for a lance or spear, for the muzzle of a gun in aiming or firing, for the top of the cue in billiards, and for a piece of work in a lathe or vise. In music, an interval of silence occurring in the course of a movement between one sound and another, hence the sign indicating the period of silence. In physics, absolute rest is the permanence of a body's position with respect to ideal fixed points in space; relative rest, that with respect to surrounding bodies.

**Restitution Edict**, an edict published A. D. 1629 by Ferdinand III., Emperor of Germany, ordering the Protestants to deliver up to the Roman Catholic authorities all ecclesiastical property which had fallen into their hands since the religious peace of Passau established in the previous century. In 1648, at the end of the Thirty Years' War, the edict was revoked.

**Restitutionists**, a religious sect in New England. They believe that what man lost in the fall is now beginning to be restored, and that everything is to come back to its original form and purity. Their Sabbath, therefore, occurs on Saturday, as the original day of worship; and their meetings are held Friday evening, because it is Sabbath eve.

**Restoration**, a term used in art to indicate the renewal or repairing of paintings, sculptures, buildings, etc., which have been defaced or partially ruined. It includes the retouching of faded and injured pictures, and the replacing of lost limbs or features of antique statues. But in reference to architecture its meaning is broader; it indicates, first, a representation, by picture or model of a ruined structure restored to its original state; secondly, the rebuilding of dilapidated or fallen portions of an edifice; and thirdly, taking down so-called "debased" work in a composite building, and replacing it by architectural features in harmony with the general style of the edifice.

**Restoration, The**, in English history a term applied to the accession of King Charles II., in 1660, after the civil war, to the throne of England, after an interregnum of 11 years and four months, from January 30, 1649, (when Charles I. was beheaded) to May 29, 1660. In French history, the first restoration begins May 3, 1814, when Louis XVIII. made his entry into Paris under the protection of foreign bayonets, and ended with the return of Napoleon from Elba, March 20, 1815. The beginning of the second restoration is generally reckoned from the battle of Waterloo, June 18, 1815, and terminated on July 29, 1830, with the abdication of Charles X.

**Restorationists**, in Church history, the followers of Origen in the opinion that after a certain purgation proportionate to their delinquencies all will be restored to God's favor and to paradise. In the Middle Ages, the Brethren of the Free Spirit held this doctrine; at the time of the Reformation, it was taught by the Anabaptists and in the 18th century by the Rationalists.

**Resumption**, the return to specie payment by a government. The Resumption Act of Jan. 14, 1875, fixed Jan. 1, 1879, as the day on which specie payments should be resumed by the United States government. Resumption actually took place on Dec. 17, 1878, when the premium on gold disappeared. In English law, resumption is the taking again by the crown of such lands, tenements, etc., as on false suggestion, or other error, had been granted by letters patent.

**Resurrection**, an expression denoting the revival of the human body in a future state after it has been consigned to the grave. Traces of this doctrine are found in other religions, in Zoroastrianism, and especially in later Judaism, but the doctrine is peculiarly Christian. In the earlier Hebrew Scriptures there is no mention of it. The most detailed exposition of the doctrine is that of the Apostle Paul in I Cor. 15. The inference from his argument is that the soul will be clothed with a new body, which he calls a spiritual body, rather than that the dead body will be revived.

## Reszke

**Reszke, Edouard de**, a Polish opera singer; born in Warsaw, Poland, Dec. 23, 1855; a brother of Jean de Reszke. He made his first appearance in Paris, in 1876, taking rank as a leading star with a voice of remarkable range and power. He made several visits to the United States filling the chief roles in grand opera. In professional life, he was constantly associated with his brother. His death was reported in 1917.

**Reszke, Jean de**, a Polish opera singer; born in Warsaw, Poland, Jan. 14, 1852. His debut was made in Venice in 1874, under the name of De Reschi, as a baritone. In 1876 and in 1883 he sang at the Theatre Francais, Paris; and in the latter year, his voice changed to a tenor of remarkable scope. He has made several tours in America.

**Retainer**, a preliminary fee paid to a counsel to secure his services, or rather to prevent the other side from securing them. A special retainer is a fee paid to secure the services of counsel for a particular case. A general retainer is a fee paid to secure a priority of claim on a counsel's services for any cause which the party paying the fee may have for trial.

**Retaining Wall**, a wall erected to maintain a bank of earth in position, as in sunk fences, faces of earthworks, railway cuttings, sea-walls, etc.; strictly speaking, a wall erected to hold an artificial bank in upright or nearly upright position.

**Retention**, in law, a lien; the right of withholding a debt or of retaining property till a debt due to the person claiming this right be duly paid.

**Rethel**, a town of France in the Department of Ardennes; on the right bank of the Aisne river and the Ardennes canal; 23 miles N. W. of Rheims and 31 miles S. W. of Mezieres. It is of Roman origin, contains many quaint buildings, and is noted for its manufactures of fine merino cloth. In the World War it was in the zone of the great battles of the Aisne. Pop. about 6,500.

**Rethel, Alfred**, a German historical painter; born near Aix-la-Chapelle, May 15, 1816. His greatest works are four frescoes in the Town Hall of Aix-la-Chapelle, representing

## Returning Boards

incidents in the life of Charlemagne.

**Retina**, the net-like expansion of the optic nerve, lying between the black pigment and the vitreous humor of the eye. It is the only part immediately concerned in the act of sensation.

**Retort**, a vessel in whose chamber an object is subjected to distillation or decomposition by heat, a neck conducting off the volatile products. The retort of the chemical laboratory is a vessel of glass, platinum, porcelain, or other material. It is bottle-shaped, having a long neck attached, in which the products of the distillation are condensed, and from which they pass into the receiver. The retort of the gas works is a cylinder or segment of a cylinder, formed of clay or iron.

**Retreat**, a military operation, in which an army retires before an enemy; properly, an orderly march, in which circumstance it differs from a flight. Also a military signal given in the army by beat of drum or sound of trumpet at sunset, or for retiring from exercise or from action. In Church usage, a period of retirement to a religious house, for self-examination, meditation, and prayer.

**Retriever**, a breed of dog, trained, as the name implies, to find out and bring back any killed or wounded game. The two varieties of retriever differ only in coat; the curly coat should curl closely and firmly all over the body, the wavy coat should fall straight and thick. The retriever makes a very good watch dog, and numberless bad specimens of the breed are to be found fulfilling this vocation only. The pure retriever is gentle in temper and easy to command.

**Returning Boards**, boards formed to canvass votes cast in an election. They were created in some of the reconstructed States a few years after the close of the Civil War, for the purpose of rectifying fraud or violence that might be practised on the negroes at the polls. In 1868 Arkansas established the first returning board. South Carolina, Louisiana and Florida had similar boards. The various returning boards were successively abolished by the respective State Legislatures.



## Reuling

**Reuling, George**, an American ophthalmologist; born in Romrod, Germany, Nov. 14, 1839; was surgeon in the Prussian army during the war with Austria; assistant surgeon in the Eye Hospital in Wiesbaden, in 1866-1867; studied in Paris and later in Baltimore and became physician-in-chief of the Eye and Ear Infirmary in Baltimore in 1869. He was Professor of Ophthalmology in the University of Baltimore; Professor of Eye and Ear Surgery in Washington University, Baltimore, Md.; and Professor of Eye and Ear Disease in the Baltimore Medical College after 1886. He was a Fellow of the Heidelberg Ophthalmological and the American Laryngological and Otological Societies; eye and ear surgeon at the Maryland General Hospital; the Maryland Home for the Aged, and for the Baltimore and Ohio Railroad. He was author of many papers on the eye. He died Nov. 25, 1915.

**Reunion**, formerly Bourbon, an island in the Indian Ocean, between Mauritius and Madagascar, 115 miles from each; area, 970 square miles; pop. (1926) 186,637, of whom 180,694 were Europeans, 628 British Indians, 1,963 natives of Madagascar, 411 Africans, and 1,626 Chinese. It was annexed by France in 1643, and is an important French colony, now sending a representative to the Chamber of Deputies, and forming practically almost a Department of France. It is very mountainous, the Piton des Neiges reaching a height of 10,069 feet, and the Piton de la Fournaise, an active volcano, of 8,294 feet. The soil produces tropical products, sugar being the principal crop. Coffee, cloves, and vanilla are also grown. Chief town, St. Denis; (1926 Est.) 23,390.

**Reuter, Paul Julius, Baron**, a German-English news agent, at one time well known from the familiar newspaper heading "Reuter's Telegram"; born in Cassel, July 21, 1821. In Aix-la-Chapelle he formed in 1849 an organization for collecting (partly by pigeon post) and transmitting by telegraph commercial and financial news; and in 1851 he transferred his headquarters to London. As telegraphs extended throughout the world he multiplied the ramifications of his system till it embraced the remotest

## Revelation of St. John

regions. He even maintained couriers where the telegraphs did not reach—e. g., between Peking and Kiachta. In 1865 Reuter converted his business into a limited liability company, and in 1871 he was made a baron of Germany. In 1872 the Shah of Persia gave him the sole right of making railways, working mines, forests, etc.—a monopoly never made effective, and annulled in 1889, when the concession of the Imperial Bank of Persia was conferred on him. Died Feb. 22, 1899.

**Reuterdahl, Henry**, an American naval artist; born in Malmo, Sweden, Aug. 12, 1871; received an academic education at Stockholm, Sweden; served as correspondent during the Spanish-American War; contributed to "Harper's," the "Century," "St. Nicholas," "McClure's," the London "Graphic" and other magazines; and in 1902 was engaged in painting a series of pictures of the ravages of the world.

**Reveille**, the signal given in garrisons at break of day, by beat of drum or sound of bugle, for the soldiers to rise and the sentinels to forbear challenging until the retreat is sounded in the evening.

**Revelation**, the act of revealing, disclosing, or making known that which is secret, private, or unknown; disclosure. Specifically, the act of revealing or communicating divine truth. Also that which is revealed, disclosed, or made known; specifically, the Bible.

**Revelation of St. John**, the last book of the New Testament, and the only distinctively prophetic one given to fling back the veil which hides futurity from the view. Its writer was John, the servant of God, the "brother" and "companion in tribulation" of the then persecuted Christians, himself an exile in Patmos. It was there he saw the prophetic visions, narrating them after he left the island. The majority of the Fathers and the Church of the Middle Ages considered, as do most modern Christians, that the author was John the Apostle. Respecting the canonicity of this book, Luther, Carlstadt, and Zwingli spoke of it disparagingly, but it is accepted by Churches of the Reformation, as well as by the Roman Church. Three

## Revenue Cutter

schemes of interpretation exist: The Preterist, which makes the events predicted now wholly passed; the Futurist, which regards them as future, and that school which regards the visions as a historical or continuous prediction of the whole history of the Church.

**Revenue Cutter**, a small armed steam vessel, designed for the prevention of smuggling; so called from the fact that originally the vessel was of the cutter-yacht type. The United States Revenue Cutter Service was formerly a branch of the Treasury Department, created principally to enforce the customs revenue laws. By the Act of Congress approved Jan. 23, 1915, the former Revenue Cutter and Life-Saving Services were merged into a new service under the name of the U. S. Coast Guard, and constituted a part of the National military forces, to operate under the Secretary of the Treasury in times of peace, and under the Secretary of the Navy in time of war.

**Reverberatory Furnace**, a furnace in which ore, metal, or other material is exposed to the action of flame, but not to the contact of burning fuel. The flame passes over a bridge and then downward on the material, which is spread on the hearth. The reverberatory furnace for copper has a furnace chamber, hearth, two tuyeres, and two cisterns, into which the molten results of the process are discharged.

**Revere, Joseph Warren**, an American military officer; born in Boston, Mass., May 17, 1812; was appointed a midshipman in the navy in 1828; lieutenant in 1841; took part in the Mexican War; and resigned from the navy in 1850. He served in the Civil War as colonel of the 7th New Jersey Volunteers and afterward as Brigadier-General. He had command of a brigade at Fredericksburg; was transferred to the command of the famous "Excelsior Brigade," with which he fought at Chancellorsville. He was censured by his superior officer after the engagement at Chancellorsville; was tried by court-martial, and was dismissed from the service in 1863; but his dismissal was revoked by President Lincoln,

## Reversion

and his resignation accepted. He wrote "Keel and Saddle," in which he relates many of his personal adventures. He died in Hoboken, N. J., April 20, 1880.

**Revere, Paul**, an American patriot, famous for his midnight ride from Boston to Lexington; born in Boston, Mass., Jan. 1, 1735. He was the son of a goldsmith from Guernsey, whose trade he followed after serving as a lieutenant of artillery in the expedition against Crown Point (1756). He also engaged in copperplate printing, and before the Revolution constructed a gunpowder mill. A keen patriot, he was one of the party that destroyed the tea in Boston harbor, and he was at the head of a volunteer committee, consisting of 30 young mechanics, who formed a secret society to watch the British. When it was known that the latter intended to move, Revere crossed over to Charlestown, and April 18, 1775, the night before Lexington and Concord, at a signal rode on to Lexington and to Lincoln, rousing the minute-men as he went; at Lincoln he was stopped, but a companion succeeded in reaching Concord. His ride is the subject of a well-known poem by Longfellow. During the war he rose to lieutenant-colonel of artillery; afterward he returned to his goldsmith's work, and in 1801 founded the Revere Copper Company at Canton, Mass. He died in Boston, May 10, 1818.

**Reverend**, worthy or deserving of reverence; entitled to reverence or respect; enforcing reverence by the appearance (applied to persons and things). Also a title of respect given to clergymen and ecclesiastics. All ministers of religion in the United States, Great Britain, and the British colonies are given this title.

**Reversion**, in law, the returning of an estate to the grantor or his heirs after a particular estate is ended. An estate in reversion is the residue of an estate left in the grantor, to commence in possession after the determination of some particular estate granted out by him. The term is sometimes improperly extended to any future estate in reversion or remainder. Reversion of series, in mathematics, when one quantity is

expressed in terms of another, by means of a series, the operation of finding the value of the second in terms of the first, by means of a series, is called the reversion of the series.

**Review**, a critical notice or examination of a new publication; a criticism; a critique. Hence a name given to certain periodical publications containing a collection of critical essays on subjects of public interest, literary, scientific, political, moral, or theological, together with critical examinations of new publications.

In law, the revision of any interlocutor, decree, or sentence, against which a person has reclaimed or appealed; the power which a superior court has of reviewing the judgment of an inferior court.

**Revised Version**, a revised edition of the Authorized Version of the Bible. A better text was constructed, manuscripts being used which had been discovered since the Authorized Version had been made. Revision, not retranslation, was aimed at, as few alterations as possible being introduced, and these only if adopted by the votes of two-thirds of the translators. The New Testament was published in May, 1881, the Old in May, 1885. Each had an immediate and large sale, but the Authorized Version still holds its place in most evangelical churches.

**Revival**, the act of reviving; the state of being revived; most commonly used in a religious sense. Revivals occur in all religions. When one takes place a large number of persons who have been comparatively dead or indifferent to spiritual considerations, simultaneously or in quick succession become alive to their importance, alter spiritually and morally, and act with exceeding zeal in converting others to their views. A Mohammedan revival takes the form of a return to the strict doctrines of the Koran, and a desire to propagate them by the sword. A Christian minority living in the place is in danger of being massacred by the revivalists.

**Revival of Letters**, the revival of literature after the apparent death-blow which it received when the barbarous nations of the North destroyed

the civilized Roman empire. It commenced in England feebly at the beginning of the 11th century, and became more potent in the 14th, 15th and subsequent centuries.

**Revocation**, in law, the destroying or annulling of a deed or will which had existence till the act of revocation made it void. The revocation of a deed can only be effected when an express stipulation has been made in the deed itself reserving this power. The revocation of a will can be made in four different ways: (1) by another will; (2) by intentional burning, or the like; (3) by the disposition of the property by the testator in his lifetime; (4) by marriage.

**Revoil, Benedict Henri**, a French novelist and dramatist; born in Aix, Bouches-du-Rhone, France, Dec. 16, 1816. He lived in the United States for nine years, during which time he collected the material for many of his works. They include: "Hunting and Fishing of the Other World" (1856); "The Daughter of the Comanches" and "Dramas from the New World" (1864-1865), and a number of plays which he staged in the United States, and afterward published in France. Died June 13, 1882.

**Revolution**, a fundamental change in government, or in the political constitution of a country, effected suddenly and violently, and mainly brought about by internal causes; a revolt against the constituted authority successfully and completely accomplished. In the United States the term Revolution is applied specifically to the American War for Independence, which began in 1775 with the irregular running fight popularly known as the battle of Lexington, and practically ended with the surrender of Lord Cornwallis, at Yorktown, Va., to the combined forces of the French and Americans, in the year 1781. By this war the colonies succeeded in casting off the English authority and in erecting the government of the United States. By the English Revolution is generally meant that revolution in England by which James II. was driven from the throne in 1688, but it is sometimes applied to the overthrow of the monarchy by Cromwell.

**Revolutionary Tribunal**, in French history, the name given on Oct. 30, 1793, to what had before been called the Extraordinary Tribunal. It sent many victims to the guillotine.

**Revolver**, a description of firearm in which a number of charges contained in a revolving cylinder are, by pulling the trigger, brought successively into position and fired through a single barrel. For the introduction of the revolver in its present form we are indebted to Col. Samuel Colt, of Hartford, Conn., though repeating pistols had long been known in other countries. These were made from one mass of metal bored into the requisite number of barrels, but were so clumsy as to be of very little use. In the Colt revolver there is a revolving cylinder containing six chambers placed at the base of the barrel, each chamber having at its rear end a nipple for a cap. These contain the cartridges, which are put in from the front of the breechpiece and driven home by a lever ramrod placed in a socket beneath the barrel. The revolver is fired through the single barrel, the cylinder being turned by mechanism connected with the lock, till each chamber in succession is brought round so as to form virtually a continuation of the barrel. Various modifications of Colt's revolver have been introduced, with the view in some cases of increasing the rapidity and facility of firing, in others of diminishing by safeguards the risks to which inexperienced hands must ever be exposed in the use of these weapons. As a military weapon the revolver will it is thought, be superseded by a repeating pistol with mechanism similar to that of magazine rifles. The revolver principle has also been applied to rifles, and to guns for throwing small projectiles, as in the Gatling and other machine guns.

**Rexford, Eben Eugene**, an American poet; born in Johnsbury, N. Y., July 16, 1848. He began to write when a mere child, contributing to periodicals and magazines. He published in book form the poems "Brother and Lover" and "Grandmother's Garden." He wrote the popular songs "Silver Threads Among the Gold" and "Only a Pansy-Blossom."

**Reyburn, Robert**, a Scotch-American physician; born in Glasgow, Scotland, Aug. 1, 1833; was graduated at the Philadelphia College of Medicine in 1856 and practised his profession in that city till 1862, when he entered the United States army as an acting assistant surgeon; later became surgeon and brevet lieutenant-colonel U. S. V., and assistant surgeon U. S. A. in 1867; and afterward practised in Washington. He was one of the surgeons in attendance on President Garfield; and was Professor of Physiology and Hygiene in the Medical Department of Howard University. He was a member of many scientific societies, author of "Clinical History of the Case of President Garfield"; and a contributor to medical journals. He died in 1909.

**Reynolds, Dudley Sharpe**, an American physician; born in Bowling Green, Ky., Aug. 31, 1842; was graduated in medicine at the University of Louisville, in 1868; and became Professor of Ophthalmology, Otology, and Medical Jurisprudence in the Hospital College of Medicine, Louisville, in 1874. He died Feb. 4, 1915.

**Reynolds, Edwin**, an American inventor; born in Mansfield, Conn., March 23, 1831; entered a machine shop as apprentice in 1847, and became superintendent of the Corliss Steam Engine Company, at Providence, R. I., in 1861; later removed to Milwaukee, Wis. He was the inventor of the Reynolds-Corliss engine; introduced the first triple-expansion engine. He died in 1909.

**Reynolds, Elmer Robert**, an American ethnologist; born in Danville, N. Y., July 30, 1846; was educated at the Columbian University; served through the Civil War; in 1877 became an examiner of pensions in the United States Civil Service. He was engaged in exploring for aboriginal antiquities in Maryland and Virginia. He died Sept. 18, 1907.

**Reynolds, John Fulton**, an American military officer; born in Lancaster, Pa., Sept. 20, 1820; was graduated at the United States Military Academy in 1841; served in the Mexican War; was appointed commandant at West Point in 1859; served through the Civil War in active service; in 1863 was promoted



Major-General of volunteers. His corps was the vanguard at Gettysburg, where he was killed, July 1, 1863.

**Reynolds, Joseph Jones**, an American military officer; born in Flemingsburg, Ky., Jan. 4, 1822; was appointed to the United States Military Academy from Indiana in 1839; on graduation was appointed 2d lieutenant, 4th Artillery, and after service at Fort Monroe and in Texas, was on frontier duty at Fort Washita, I. T., in 1855-1856; was stationed at various colleges. After the beginning of the Civil War he rapidly rose in rank from colonel to Major-General; was brevetted Brigadier-General in 1867 for gallant and meritorious service, and was in the same year brevetted Major-General; was transferred to the 23d Cavalry in 1870, and after that time served at Fort McPherson and other military stations till retired from active service June 25, 1877, for disability contracted in the line of duty. He died in Washington, D. C., Feb. 25, 1899.

**Reynolds, Joseph Smith**, an American lawyer; born in New Lenox, Ill., Dec. 3, 1839; was graduated at the University of Chicago in 1866; served through the Civil War, participating in many battles. After the war was admitted to the bar; was a member of the Illinois Legislature in 1866-70; one of the founders of the Chicago park system; State Senator in 1872-74; commissioner to establish a State School for Feeble-Minded Children in 1875; senior vice-commander-in-chief, G. A. R., 1875-76; commander of the Illinois Department, G. A. R., in 1877; and first vice-president of the Society of the Army of the Tennessee in 1877. Died in 1911.

**Reynolds, Sir Joshua**, an English portrait and subject painter; born in Plympton Earls, near Plymouth, July 16, 1723. His father intended him for the medical profession; but he developed a strong aptitude for painting, and at the age of eight had mastered the "Jesuit's Perspective," and applied its principles to drawings executed by himself. In October, 1740, he was sent to London to study art. In 1743 he returned to Devonshire, and some of the portraits of local worthies which he then produced still exist. In the following year he

was again in London pursuing his art; but in the beginning of 1747, he settled in Plymouth Dock. In 1749 he made the acquaintance of Commodore Keppel, who invited him to accompany him on a cruise in the Mediterranean; and, after painting many of the British officers in Minorca, he made his way to Rome, where he studied Raphael and Michaelangelo. He also visited Bologna, Genoa, Florence, Parma, and Venice. Returning to England in October, 1752, he established himself in a studio in London, and attracted notice by his portraits of the second Duke of Devonshire and Commodore Keppel. Before long he was in excellent practice, and in the year 1755 he had no fewer than 120 sitters. In 1764 he founded the famous literary club of which Dr. Johnson, Garrick, Burke, Goldsmith, Boswell, and Sheridan were members; all of whom were portrayed by his brush. He was one of the earliest members of the Incorporated Society of Artists, and contributed to its exhibitions till 1768, when, on the establishment of the Royal Academy, he was elected its first president. He contributed his picture of Miss Morris as "Hope Nursing Love" to the first exhibition of the Royal Academy. In 1771 he completed his subject "Count Ugolino and his Children in the Dungeon." In 1784 he succeeded Allan Ramsay as painter to the king; in July, 1789, his sight became affected and he ceased to paint; gradually his strength sank, and he peacefully expired on Feb. 23, 1792.

**Reynolds, William**, an American naval officer; born in Lancaster, Pa., Dec. 18, 1815; entered the navy in 1831; was commissioned lieutenant in 1841 and owing to broken health was retired in 1851. He was later sent to Hawaii, where he negotiated a reciprocity treaty. When the Civil War began he returned to active duty; was placed in command of the naval forces on the Asiatic Station in 1862; was promoted captain in 1866 and rear-admiral in December, 1873, and was retired on account of ill health in December, 1877. He died in Washington, D. C., Nov. 5, 1879.

**Reze, Frederick**, an American clergyman; born in Hildesheim, Germany, in 1797; fought in the battle

of Waterloo; and soon afterward was ordained in the Roman Catholic Church and sent to Africa; and later came to the United States; returned to Germany in 1827 and sent many missionaries to the United States; again returned to the United States in 1828 and labored among the Indians of Ohio and Michigan. In 1833 he was sent to Detroit, Mich., and was consecrated the first bishop of Michigan and Wisconsin. He resigned his see in 1837, and returned to Rome, where he lived for several years. He died in Hildesheim, Germany, Dec. 27, 1871.

**Rhamnaceæ**, an order of plants. There are species in nearly all countries, with the exception of the Arctic zone. Berries belonging to various plants of the order have been used for dyeing yellow, green, or intermediate tints, others are eatable. One plant is used by the poorer classes in China for tea.

**Rhapsodist**, strictly, one who strings songs together, but usually applied to a class of persons in ancient Greece, who earned their living by reciting the poems of Homer. It is believed that to these persons we are chiefly indebted for the preservation of the Homeric poems.

**Rhatany**, or **Rhattany**, half-shrubby plant, a native of the cold sterile table-lands of the Andes in Peru and Bolivia. It is valued for the medicinal properties of the root, which are shared more or less by other species of the same genus, also natives of South America.

**Rhea**, in Greek mythology, the daughter of Cœlus and Terra, or Heaven and Earth; the wife of Saturn, and mother of Jupiter, Juno, Ceres, Vesta, and several other deities.

**Rhea**, in ornithology, a genus of Struthionidæ. They are sometimes called South American ostriches, but are smaller than the true ostrich, and the whole plumage is somber, ranging from Bolivia, Paraguay, and the S. of Brazil down to Magellan's Straits.

**Rhea**, a variety of the nettle family, which grows luxuriantly in India. From the delicate fibers in its bark the finest and strongest textile fabrics can be produced. They can be worked into every variety of fabric, from velvets to laces. It is specially suitable,

from its lightness and toughness, for tents and ship canvas, and it is found to be far more durable than linen.

**Rhea, Mademoiselle** (Mlle. Hortense Barbe-Loret), a Belgian actress; born in Brussels, Belgium, Sept. 4, 1844. Educated at the Ursuline Convent, Paris, France; she began to study for the stage soon after leaving school; was leading actress at the Imperial Theater, St. Petersburg, 1876-1881; acted in the United States in 1881 and 1882. She died in Montmorency, France, May 5, 1899.

**Rhead, Louis John**, an American artist; born in Etruria, England, in 1860; was educated at the Art Training School, South Kensington, London; and came to the United States in 1883. He was a painter in both oil and water-colors, and illustrated many books.

**Rhees, Rush**, an American educator; born in Chicago, Ill., Feb. 8, 1860; was graduated at Amherst College in 1883, and at the Hartford Theological Seminary. In 1889 he accepted a pastorate at Portsmouth, N. H., where he remained till 1892, when he went to the Newton Theological Institution, Newton Center, Mass., and in 1894 became Professor of Biblical Interpretation of the New Testament. He was elected president of the University of Rochester, Rochester, N. Y., July 1, 1900.

**Rhees, William Jones**, an American bibliographer; born in Philadelphia, Pa., March 13, 1830; became chief clerk of the Smithsonian Institution and had charge of its publications from 1852. He was one of the founders of the Sons of the American Revolution. He died in 1907.

**Rheims**, or **Reims**, a city in the French department of Marne; on the Vesle; 100 miles E. N. E. of Paris. It is well built, and from the prevalence of the older style of domestic architecture, has a picturesque appearance. Under the Frank rule it was a place of much importance, and it acquired a deeply religious interest from its having been the scene in 496 of the baptism of Clovis and his chief officers by the bishop, St. Remy (438-533). In the 8th century it became an archbishopric, and from 1179, when Philip Augustus was solemnly crown-

ed here, it became the place for the coronation of the kings of France. Joan of Arc brought the dauphin hither, and the only sovereigns in the long series, down to 1825, not crowned at Rheims were Henry IV., Napoleon I., and Louis XVIII. In 1830 the ceremony of coronation at Rheims was abolished. The cathedral, though the towers of the original design are still unfinished, is one of the finest extant specimens of Gothic architecture. It was built between 1212 and 1430. The Romanesque church of St. Remy (mainly 1160-1180), with the saint's shrine, is nearly of equal size, but of less architectural pretension. Rheims is one of the principal entrepôts for the wines of Champagne, and the hills which surround the town are planted with vineyards.

In 1874 the construction of a chain of detached forts was begun in its vicinity, and by the beginning of the World War thirteen fortresses had been built in a perimeter not quite 22 miles in length and at a mean distance of 6 miles from the center of the city. The hills on the Paris side were still open and unguarded. The city was several times captured and recaptured in the foreign invasions of 1814, and the Germans made it the seat of a governor-general and impoverished it by heavy requisitions in 1870-71. In the World War it was several times bombarded and bombed by the Germans, who directed their heaviest fire against its magnificent cathedral, practically ruining it, and gaining no military advantage whatever by their sacrilegious attacks. The spasmodic attacks, continued through 1917, excited the world's condemnation. Pop. (1926 Est.) 100,998. See APPENDIX: *World War*.

**Rhett, Thomas Grimke**, an American military officer; born in South Carolina about 1825; was graduated at the United States Military Academy and assigned to the Ordnance Corps in 1845, and served at the Washington arsenal till 1846, when he was transferred to the Mounted Rifles, and sent to Mexico. He served in the Mexican War; became captain in 1853. He resigned his commission in 1861, and sought high office in the Provisional Confederate army, but not receiving it he returned to South Carolina, where he was commissioned

a Major-General by the governor. He was chief of staff to Gen. Joseph E. Johnston, till 1862, when he was ordered to the Trans-Mississippi Department. After the war he was colonel of ordnance in the Egyptian army in 1870-1873, when he resigned owing to ill health. He died in Baltimore, Md., July 28, 1878.

**Rheum**, rhubarb; used in the United States in the making of pies, and is often called pie plant.

In pharmacy, three leading kinds of rhubarb are recognized: The Turkey or Russian rhubarb, the East Indian, and the Batavian rhubarb. An extract, an infusion, a syrup, a tincture, and a wine of rhubarb, with a compound rhubarb pill, are used in pharmacy.

**Rheumatism**, a term which has been and still is, rather vaguely and extensively used in the nomenclature of disease. The usual exciting cause of acute rheumatism is exposure to cold, and especially to cold combined with moisture. Men are more subject to the disease than women. The predisposition is affected by age; children under 10 years being comparatively seldom attacked, while the disease is most prevalent between the ages of 15 and 40. Above this age a first attack is rare, and even recurrences are less frequent than earlier in life. Persons once affected become more liable to the complaint than they previously were. Chronic painful affections of the joints, called chronic rheumatism, sometimes follow rheumatic fever and are a consequence of it. It is more common in women than in men; most often begins at or after middle life, though occasionally even in childhood; and is apt to affect those who are weakly and who have had a life of hard work with defective nourishment. There is no special liability to affection of the heart as in true rheumatism. Muscular rheumatism is the name usually given to painful affections of the muscles for which no clear cause is discoverable. Rheumatic diseases of animals are less common than the corresponding affections of men. Horses are not very liable to acute rheumatism, but suffer from a chronic variety. In cattle and sheep rheumatic disorders are more common and acute than in horses. Among

## Rhine

dogs rheumatism is known under the name of kennel lameness, and is very troublesome and intractable in low, damp, cold situations.

**Rhine** (German Rhein), the finest river of Germany, and one of the most important rivers of Europe, its direct course being 460 miles and its indirect course 800 miles (about 250 miles of its course being in Switzerland, 450 in Germany, and 100 in Holland); while the area of its basin is 75,000 square miles. It is formed in the Swiss canton Grisons by two main streams called the Vorder and Hinter Rhein. The Vorder Rhein rises in the Lake of Toma, on the S. E. slope of the St. Gothard, at a height of 7,690 feet above the sea, near the source of the Rhone, and at Reichenau unites with the Hinter Rhein, which issues from the Rheinwald Glacier, 7,270 feet above sea-level. Beyond Reichenau the united streams take the common name of Rhine. Generally speaking, it pursues a N. course till it enters Holland, below Emmerich, when it divides into a number of separate branches, forming a great delta, and falling into the sea by many mouths. That which retains the name of Rhine, a small stream, passes Leyden and enters the North Sea. In the German part of its course the chief tributaries are the Ill, Nahe, Moselle, Ahr, and Erft, Neckar, Main, Lahn, Sieg, Ruhr, and Lippe. In Switzerland its tributaries are short and unimportant, and this part of its course is marked by the Falls of the Rhine at Schaffhausen, where the river is precipitated in three leaps over a ledge of rocks 48 to 60 feet in height, and by the cataracts of Lauterberg and the rapids of Rheinfelden. It is navigable without interruption from Basel to its mouth, a distance of 550 miles. Large sums are spent every year in keeping the channel in order, and in the erection or repair of river harbors, both in Germany and Holland. The Rhine is distinguished by the beauty of its scenery, which attracts many tourists.

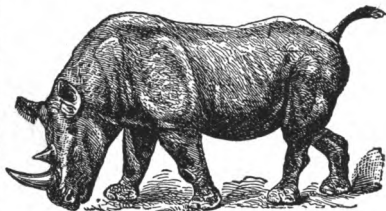
**Rhine Wines**, a general term for wines made from the grapes grown on the borders of the Rhine.

**Rhinoceros**, the sole recent genus of the family Rhinocerotidae. It falls naturally into three sections:

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## Rhinoceros

(a) **Rhinoceros**.—There are two well-marked species: *Rhinoceros unicornis*, with a single horn, and well marked folds in the skin; *R. sondaicus*, the Javan rhinoceros, is smaller and distinguished by the different arrangement of the folds of the skin, and by the small size or absence of the



RHINOCEROS BICORNIS.

horn in the female. Found near Calcutta, in Burma, Malay Peninsula, Java, Sumatra, and probably Borneo.

(b) *Ceratorhinus*.—The folds are not so strongly marked as in the first section. There is a well-developed nasal, and a small frontal horn, separated by an interval. Geographical range nearly the same as that of the Javan rhinoceros, but it does extend into Bengal.

(c) *Atelodus*, with two well-marked species, peculiar to Africa. Incisors rudimentary or wanting, well-developed anterior and posterior horns in close contact; skin without definite permanent folds. *R. bicornis*, the common two-horned rhinoceros, is the smaller, and has a pointed prehensile lip. It ranges from Abyssinia to Cape Colony, but the progress of civilization and the attacks of sportsmen are rapidly reducing its numbers. Two varieties are said to exist, the square-mouthed, or white rhinoceros, has a square truncated lip, browses on grasses and frequents open country. It is the largest of the family, an adult male standing over six feet at the shoulder.

Any individual of the genus rhinoceros. The rhinoceros is the largest and most powerful terrestrial mammal, except the elephant, to which, as well as to the hippopotamus and tapir, it is allied. They are of low intelligence, and usually harmless, but when

## Rhinodon

provoked they display considerable ferocity, and, though apparently so clumsily formed, can run with great speed.

**Rhinodon**, in ichthyology, the sole genus of the family Rhinodontidae, a gigantic shark, known to exceed 50 feet in length, and said to attain 70. Common in the W. parts of the Indian Ocean. It is harmless, the teeth being small and numerous.

**Rhoads, Samuel Nicholson**, an American naturalist; born in Philadelphia, Pa., April 30, 1862; took a special course in journalism in Harvard University; and later studied at the Academy of Natural Sciences and Museum of Science and Art, in Philadelphia, and at Carnegie Museum, Pittsburg; and after 1893 traveled as a collector of museum specimens of natural history.

**Rhodanthe**, in botany, a genus of Helychryseæ; only known species *R. manglietii*, a beautiful composite; its flowers, of the dry and unfading kind, roseate or purple on the upper part, and silvery below. It is found in Western Australia, has been introduced into European and American greenhouses, and will grow also in the open air in a temperature between 60° and 80°. There are several varieties.

**Rhode Island**, a State in the North Atlantic Division of the North American Union; one of the original 13 States; capital, Providence; area, 1,248 sq. m.; pop. (1920) 607,580; (1930) 687,020.

The State is divided into two unequal parts by Narragansett Bay, which extends inland about 30 miles. The surface of the W. portion or mainland is hilly, but the hills are all low; the greatest height, Woonsocket Hill, having an altitude of 570 feet. There are numerous salt marshes along the ocean. The E. part consists mainly of islands. Of these the largest and most important is Rhode Island from which the State derives its name. The principal rivers are the Pawtucket, navigable as far as Pawtucket, where it changes its name to Blackstone, the Pawcatuck, forming part of the boundary between Rhode Island and Connecticut, and the Pawtuxet, flowing across the central part of the State, and emptying into the Providence river, an arm of the Narragansett Bay. There are numerous coves and

## Rhode Island

bays branching off from Narragansett; among them being Greenwich Bay, Saxonnet river, Mount Hope Bay, and Providence river. Block Island, 10 miles from the coast belongs to the State.

In 1925 it was estimated that there were in Rhode Island 3,911 farms covering 309,013 acres, of which 107,602 were improved land. The total of all farm property was estimated at \$29,984,081. In 1926 the value of the crops produced was \$4,700,000.

In 1927 there were 1,497 manufacturing plants, employing 120,009 wage earners, paying \$138,896,000 for wages and \$313,107,000 for raw materials, and yielding products having a combined value of \$592,235,000. During this year it was estimated that over 2,400 bales of cotton were consumed in the manufacture of cotton products for which the state is noted.

In 1928 there were 146,039 pupils enrolled in public, private and parochial elementary and secondary schools. For higher education there were 45 public and private high schools and academies with 25,408 pupils under 1,593 teachers; 3 universities, colleges and professional schools with 3,233 students under 214 professors and instructors. The Rhode Island Normal School, the Rhode Island State College at Kingston, and Brown University (Baptist, co-educational, opened in 1765) at Providence are well known.

In 1925 it was estimated that there were over 500 religious organizations with around two hundred and fifty thousand members, and church property valued at around fifteen million dollars. The strongest denominations are Roman Catholic, Baptist, Methodist Episcopal, in the order stated.

Having an abundance of water power, Rhode Island is one of the leading manufacturing states and domestic commerce is of greater importance than foreign. The fine harbors of Rhode Island have greatly aided her in maintaining a leading position in the marketing of cotton and woolen goods, worsteds, boots, shoes, tools, jewelry and silverware. To Rhode Island goes the credit for the invention of the gimlet-point screw.

Rhode Island's costal position makes the fishing industry important, the production value being in excess of \$1,000,000 annually.



## Rhode Island

In 1928 there were 196 miles of steam and 304 miles of electric railroads in operation, the former comprising the New York, New Haven and Hartford system and its subsidiaries.

The State's net revenue in the year ended June 30, 1927 aggregated \$10,538,900; net expenditures, \$10,390,905; the assessed valuation of all taxable property was \$1,229,056,254; tax levy, \$2.22 per capita; net debt, \$18,385,137.

The governor is elected for a term of two years and receives a salary of \$8,000 per annum. Legislative sessions are held annually, beginning on the first Tuesday in January and are unlimited as to session days. The Legislature in 1928 had 39 members in the Senate and 100 members in the House. There were three Representatives in Congress.

The judicial arm of Rhode Island's government consists of the Supreme Court and inferior courts, the latter being established from time to time by the General Assembly. Justices of the Supreme Court are elected by the General Assembly and hold office until that body, by resolution, declares the office vacant.

Penal and reformatory institutions are located on what is known as the "State Farm." This a tract of 740 acres of land in Cranston, near Providence. The institutions consist of a workhouse, house of correction, hospital for the insane, an almshouse, state prison, Providence County jail, Sockanosset school for boys and the Oaklawn school for girls.

The principal cities of the state are Providence, the capital; Pawtucket, Woonsocket, Newport, Central Falls and Cranston. The state was named to commemorate the defense of the Isle of Rhodes by the Knights of St. John.

It is claimed that the Northmen visited this region about A. D. 1000. The first English settlement was made at Providence in 1636, by Roger Williams. The charter granted by Charles II. to the colony was so liberal in its provisions that it remained the fundamental law of the State till 1842. Rhode Island was firm in opposition to the King Philip War.

## Rhodes

King Philip himself was killed in what is now the town of Bristol. The great "swamp fight" occurred in 1675, in the Narragansett country, where more than 1,000 Indians were killed. The charter was temporarily suspended from 1686 to 1687. A new constitution was adopted in 1842, this going into effect in 1843. Rhode Island was the last of the States to ratify the Federal Constitution in 1790, and until a recent period foreign born citizens could not vote unless they owned real estate.

**Rhodes**, an island in the Mediterranean, appertaining to Asiatic Turkey, near the coast of Asia Minor; is 40 miles long, with a breadth of 18 miles at its widest point; area, 570 square miles; pop. about 30,000.

**Rhodes**, the capital of the island of Rhodes, situated at its N. E. extremity. It is defended by towers about 800 feet distant from each other, while in the center of the mole there is a square bastion 120 feet high. It was at the entrance to the harbor of this city that stood the celebrated Colossus of Rhodes. Pop. about 10,000. The ancient Rhodes was taken possession of by a branch of the Doric race, who held it at the time of the Trojan war, 1184 B. C. It was of small political importance among the states of Greece till the city of Rhodes was built and made the capital of the island, 408 B. C. It was taken by Chosroes II., King of Persia, in 616; by the Saracens in 651; and by the Knights of St. John, Aug. 15, 1309. Mohammed II. besieged it ineffectually in 1480, and the Sultan Solymán I. compelled it to capitulate after a vigorous siege that lasted from June to December, 1522.

**Rhodes, Cecil John**, a South African statesman; born July 5, 1853. He was the fourth son of the vicar of Bishop Stortford, Hertfordshire, England; was sent for his health to Natal, where his brother was a planter. He subsequently went to the Kimberley diamond diggings; there he soon became conspicuous and amassed a fortune. He went back to England, and entered at Oriel College, Oxford, and though his residence was cut short by ill-health, he ultimately took his degree. He entered the Cape House of Assembly as member for Barkly.



## Rhodesia

In 1884 General Gordon asked him to go with him to Khartum as secretary; but Rhodes had just taken office in the Cape Ministry, and decided to remain in South Africa. He sent \$50,000 to Mr. Parnell to forward the cause of Irish Home Rule. In 1890 he became Prime Minister of Cape Colony. His policy may be described as the ultimate establishment of a federal South African dominion under the British flag. He was an earnest advocate of the construction of a railroad "from Cairo to the Cape." He died in Cape Town, South Africa, March 26, 1902. In his will Mr. Rhodes left about \$10,000,000 to found a number of three-year scholarships tenable at Oxford, England. The income for each scholarship was \$1,500 a year, and two were offered to every State and Territory in the American Union, to every English speaking colony; and five were set apart for students of German descent.

**Rhodesia**, the name given to that part of South Africa which has been occupied in recent years by the British South African Company, acting first under Cecil John Rhodes and subsequently under a royal charter dated Oct. 29, 1889. The river Zambesi divides the region into two portions—Southern and Northern Rhodesia. Southern Rhodesia has an area of about 148,575 square miles and pop. (1925 Est.) 873,647; Northern Rhodesia has area of about 290,000 square miles and pop. of 1,144,642; of the combined population all but about 43,800 are natives.

Southern Rhodesia consists of the two provinces of Matabeleland and Mashonaland. The capital of Southern Rhodesia and of Mashonaland is Salisbury; of Matabeleland, Bulawayo. The Rhodesian railway system begins at Vryburg in the Cape Colony and by 1917 extended N. to the Kongo State border, a through communication from Cape Town to the Kongo border, a distance of 2,149 miles. Salisbury is connected by rail with Bulawayo (301 miles), Beira (374 miles), and the Ayrshire and Eldorado mines (98 miles). The total mileage of the Rhodesian systems was 2,484 miles. The other principal towns are Victoria, Umtali, Gwelo, Enselodoorn, Melsetter, Hartley, Se-

## Rhomb

lukwe, Gwanda, and Gatooma.

Northern Rhodesia was reconstituted May 4, 1911, by the merging of Northeastern and Northwestern Rhodesia, so that it now occupies the territory between the Portuguese settlements, the former German East Africa, and the Kongo State, excepting the Nyasaland Protectorate. Its capital is Livingstone. The exports include ivory and rubber, also tobacco and cotton, which are being grown with success. Of the entire population, only 4,624 were Europeans.

**Rhodium**, one of the rare metals found in platinum ores. It is very hard, white, and brittle, and, with the exception of iridium, one of the most infusible of metals.

**Rhododendron**, a genus of trees and shrubs of the natural order Ericaceæ. The buds in this and nearly allied genera, as Azalea, are scaly and conical. The species are numerous;



RHODODENDRON.

they have evergreen leaves, and many of them are of great beauty both in foliage and in flowers. A few small species are natives of continental Europe and of Siberia; but the greater number belong to the temperate parts of North America, and to the mountains of India.

**Rhomb**, or **Rhombus**, in geometry, an oblique parallelogram whose sides are all equal. The diagonals of a rhombus bisect each other at right angles. The area of a rhombus is equal to half the product of its diagonals.

**Rhone** (Latin, Rhodanus), a river in Europe which rises in Switzerland, near the E. frontiers of the canton of Valais, about 18 miles W. S. W. of the source of the Vorder-Rhein. Its precise origin is the Rhone Glacier, 5,581 feet above the level of the sea. It passes through the Lake of Geneva, and enters France, flowing first S. and then W. to the city of Lyons, where it turns almost due S., and so continues till it falls into the Gulf of Lyons by a greater and smaller mouth, forming here an extensive delta. Its principal affluent is the Saone, which enters it at the city of Lyons; other large tributaries are the Isere and Durance. Its whole course is about 500 miles; its drainage area is 38,000 miles; and it is navigable for 360 miles. The great obstacles to navigation and the rapid current, the shifting character of the channel, and periodical floods; these obstacles have to a great extent been overcome by a scheme of regularization and canalization, to secure everywhere a depth of over 5 feet. By canals the navigation of the Rhone is connected with the Rhine (through the Saone), Seine, and Loire, and with the Meuse and the Belgian system.

**Rhubarb**, a hardy perennial herb. See RHEUM.

**Rhus**. See SUMAC; also POISON IVY.

**Rhyme**, more correctly *Rime*, in poetry, a correspondence in sound of the terminating word or syllable of one line of poetry with the terminating word or syllable of another. To constitute this correspondence in single words or in syllables it is necessary that the vowel and the final consonantal sound (if any) should be the same, or have nearly the same sound, the initial consonants being different.

**Rhythm**, in general a measured succession of divisions or intervals in written composition, music, or dancing. The rhythm of poetry is the regular succession of accent, emphasis, or voice stress; or a certain succession of long and short syllables in a verse. Prose also has its rhythm, and the only difference between verse and prose is, that the former consists of a regular succession of similar cadences, divided by grammatical pauses and emphases into proportional clauses, so as

to present sensible responses to the ear at regular proportioned distances. In music, rhythm is the disposition of the notes of a composition in respect of time and measure; the measured beat which marks the character and expression of the music.

**Riall, Sir Phineas**, a British military officer; born in England about 1769; entered the army as ensign in 1794 and rose to the rank of major. He was in command of a brigade in the West Indies in 1808-1810; became colonel in 1810 and Major-General in 1813; and later was ordered to Canada to take part in the war between Great Britain and the United States. He was chief in command at the battles of Chippewa and Lundy's Lane. He was appointed governor of the Island of Grenada in 1816; was promoted Lieutenant-General in 1825 and full General in 1841; and was knighted in 1833. He died in Paris, France, Nov. 10, 1851.

**Rib**, in anatomy, one of the long curved bones which form the walls of the chest. They extend in an oblique direction from the vertebrae of the back to the sternum in front. There are usually 12 on each side; but in some rare cases 13 have been found, in others only 11. The use of the ribs is to cover and defend the lungs and heart; and their articulations with the vertebrae and sternum admitting of a slight motion, they assist in respiration.

**Ribbon**, **Riband**, or **Ribband**, a narrow woven fabric commonly of silk, used for trimming some part of woman's attire; also for badges and other decorative purposes.

**Ribbon Fish**, known also as the oar-fish.

**Ribbon Grass**, a species of canary grass with variegated leaves.

**Ribes**, in botany, a genus of the order Grossulariaceae. Some of the species are remarkable for their agreeable and wholesome acid fruits, and are, on this account, much cultivated in our gardens. *R. grossularia* is the source of numerous varieties of gooseberries. *R. rubrum* yields both red and white currants, and *R. nigrum* black currants.

**Ribot, Alexandre Felix Joseph**, a French statesman; born in St.

Omer, France, Feb. 7, 1842. He studied law in Paris, and in that city became prominent in legal and municipal affairs; in 1870, was secretary of the Bar Society; was appointed director of pardons and of criminal matters in 1875; becoming Minister of the Interior and president of the cabinet, January to March, 1893. When Faure became president, in 1895, M. Ribot again became premier, and held the post till the following October. On March 19, 1917, this veteran Minister of Finance of six Cabinets became Premier and Minister of Foreign Affairs, after forming what was called the cooperative Ministry; but on Sept. 9, following, he resigned his post because of Socialist opposition to his policy.

**Ricardo, David**, an English political economist; born in London, England, April 19, 1772. He stands next to Adam Smith in the British free-trade school of political science, and his writings have exerted vast influence on all theories of political economy. He died Sept. 11, 1823.

**Ricciardelli, Daniele**, better known by the name of Daniele da Volterra, an Italian painter; born in Volterra, Italy, in 1509. His fame rests chiefly on a series of frescoes in the church of La Trinita de' Monti, Rome; and of these the "Descent from the Cross" is well known. He died in Rome, April 4, 1566.

**Rice**, a well known genus of grasses, having panicles of one-flowered spikelets, with two very small pointed glumes, the florets compressed, the paleæ strongly nerved, awned or awnless, six stamens, one germen, and two feathery stigmas. The only important species is the common rice, one of the most useful and extensively cultivated of all grains, supplying the principal food of nearly one-third of the human race. It seems to be originally a native of the East Indies, but is now cultivated in all quarters of the globe. Rice requires a moist soil, sometimes flooded. In some parts of the East canals are carried along the sides of hills for the irrigation of land for the cultivation of rice. In South Carolina rice is sown in rows in the bottom of trenches, which are about 18 inches apart; the trenches are filled with water to the depth of several inches, till the seeds germinate; then the

water is drawn off, and afterward the fields are again flooded to kill weeds. They are flooded again when the grain is near ripening. In Europe the cultivation of rice is most extensively carried on in Lombardy and in Valencia in Spain.

China in normal times produces around thirty per cent of the total rice crop of the world. India is at present the largest producer. In 1927 Japan produced 538,742,000 bushels, Korea 152,098,000 bushels, Madagascar 42,842,000 bushels, Italy 34,073,000 bushels, Spain 13,784,000 and India, the leader, 2,259,757,000 bushels.

The total crop of the United States for the year 1927 was 37,728,000 bu. Louisiana led with 17,316,000 bu., California 8,960,000 bu., Arkansas 7,438,000 bu., South Carolina 90,000 bu., Missouri 75,000 bu., Georgia 48,000 bu., and Mississippi 25,000 bu.

The total exports of whole rice was 239,596,451 lbs., and of rice flour, meal, broken rice, etc., 70,402,195 lbs., the total imports for the same year were, cleaned rice 43,229,507 lbs., uncleaned rice 10,675,000 lbs., and broken rice, meal, etc., 2,385,779 lbs.

**Rice, Alexander Hamilton**, an American geographer and explorer, born in Boston, Mass., Aug. 29, 1875, A.B., Harvard, 1898, M.D., 1902, surg. interne, Mass. Gen. Hosp., 1903-5; diploma Royal Geog. Society, Sch. of Geog. Surveying and Astronomy, 1908-10, Comm'd. Lt. U.S.N.R.F. Oct. 10, 1917; lecturer on diseases of tropical South America, Harvard, Med. School. Dr. Rice devoted much time to the exploration, mapping and scientific investigation of Tropical South America. He organized and conducted seven expeditions into Colombia, Brazil, and Venezuela, exploring and mapping more than 500,000 square miles, at the same time making investigation of geological, biological and medical character. He is a member of many scientific and exploration societies and clubs both in America and abroad.

**Rice, Alice Caldwell Hegan**, an American author, born in Shelbyville, Ky., Jan. 11, 1870, educated in private schools. Author of "Mrs. Wiggs of the Cabbage Patch," "Lovely Mary," "Sandy," "Captain June," "Mr. Opp."

**Rice, Edmund**, an American military officer; born in Cambridge, Mass.,

in 1842; entered the Union army at the beginning of the Civil War; appointed captain in 1861; and was mustered out of service as colonel in 1865. He received a medal of honor for conspicuous bravery in the battle of Gettysburg. In 1866 he entered the regular army, rose to colonel, and was assigned to the 5th Infantry in 1870. He organized and commanded the Columbian Guards at the World's Columbian Exposition; was military attache at Tokyo, Japan; appointed Inspector-General, U. S. A., in 1898; served on General Miles' staff; and later was colonel of the 26th Infantry. He invented a trowel bayonet, and knife-intrenching bayonet. Died 1906.

**Rice, James**, an American educator; born in Richmond, Ky., Nov. 25, 1842; was graduated at Georgetown College, Ky., in 1866, president of Concord College in 1868-1872 and 1876-1880; of Lebanon Female College in 1872-1876; of Masonic College in 1880-1888; and of the Southwest Baptist College after 1897.

**Rice, Wallace (de Groot Cecil)**, an American literary critic; born in Hamilton, Canada, Nov. 10, 1859; was educated at Harvard University, and admitted to the Chicago bar in November, 1884. He served as reporter and critic on various Chicago papers.

**Rice, Willard Martin**, an American clergyman; born in Lowville, N. Y., April 30, 1817; was graduated at Wesleyan University in 1837. He was ordained in the Presbyterian Church in 1858, and held charges in Philadelphia till 1884. He became a member of the Presbyterian Board of Publication in 1862; and after 1876 was engaged on the various publications of the Board. Died in 1904.

**Rice, William Morton Jackson**, an American painter; born in Brooklyn, N. Y., Feb. 18, 1854; was graduated at Cornell University in 1874; studied painting in Paris.

**Rice, William North**, an American educator; born in Marblehead, Mass., Nov. 21, 1845; was graduated at the Wesleyan University in 1865; was Professor of Geology and Natural History at the Wesleyan University in 1867-1884; and of Geology after 1884; and was assistant geologist of the United States Geological Survey in 1891-1892.

**Rice Bunting**, a name given to two distinct birds. The first, also known by the name "bob-o-link," is a bird of the bunting family, which migrates over North America from Labrador to Mexico. The song of the male is singular and pleasant. When fat their flesh becomes little inferior in flavor to that of the European ortolan. The other species, known as the rice bunting, is also known as the Java sparrow, and paddy bird. It belongs to the true finches, a group nearly allied to the buntings. It is dreaded in Southern Asia on account of the ravages it commits in the rice fields. It is frequently brought to Europe, and is found in aviaries.

**Rice Paper**, the produce of the *Aralia papyrifera*, a low shrub, with large leaves, from Formosa, where it is wild and abundant. The trunk and branches resemble those of the elder. The pith, dried and rolled, or hammered, and pared by sharp knives, forms the paper.

**Rich, Edmund**, an English ecclesiastic; born in Abingdon, England, about 1195. He became archbishop of Canterbury in 1233, and exhibited great energy as a reformer. He died in 1242.

**Richard I.**, King of England, surnamed Cœur de Lion; third son of King Henry II. and his wife, Eleanor of Aquitaine; born either at Oxford or at Woodstock, Sept. 8, 1157. In England Richard did not spend in all his life a full year; after he became king he spent only 26 weeks in his kingdom, 17 weeks when he landed to take the crown and to go through the coronation ceremony at Westminster, and nine weeks when he came back from his imprisonment.

Richard became King of England, Duke of Normandy, and Count of Anjou on July 5, 1189, and was crowned King of England on Sept. 3, following. But he had already taken the vows of the crusader; and besides his coronation, he had another object in coming to England; he wanted to raise funds for his crusade. He effected this latter purpose in a brief space of time by selling whatever he could get a purchaser for. About midsummer 1190 he met Philip of France at the rendezvous, Vezelai in France. Both kings spent the winter in Sicily, and

their mutual jealousy came within a hair's-breadth of a rupture.

On his way to Palestine in the spring of 1191, part of the fleet of the English king was driven on to the island of Cyprus, and the crews were most inhospitably treated by the reigning sovereign, Isaac Comnenus, a nephew of the Emperor of Byzantium, who had revolted from his liege lord. Richard sailed back from Rhodes, routed Isaac in battle, deposed him, and gave his crown to Guy of Lusignan. In Cyprus, too, he married Berengaria of Navarre, whom his mother had brought to him at Messina. At last, on June 8, the English king landed near Acre, and shortly afterward that stronghold surrendered, the siege having lasted two years. The glorious exploits of Richard the Lion-hearted — his march to Joppa along the seashore, his approach on Jerusalem at Christmas, his capture of the fortresses in the S. of Palestine, his second advance in the summer of 1192 on Jerusalem, and his relief of Joppa — made his name ring throughout the East and excited the wonder and admiration of Christendom, but brought no real advantage to the crusading cause.

Richard in September concluded a peace with Saladin for three years, three months, and three days, and in his impulsive, impatient way started off home alone, without waiting for his army and fleet. A storm shipwrecked him near the N. end of the Adriatic. In disguise he began to make his way through the dominions of his bitter enemy, the Archduke of Austria. He was recognized, seized, and handed over to the Emperor Henry VI. (March, 1193). The emperor demanded a heavy ransom for his release, but promised to give him the kingdom of Arles in addition to his liberty. Richard's loyal subjects raised the money; and greatly to the chagrin of Philip of France and Richard's brother John, the captive king returned home (March 13, 1194).

In England in the meantime Longchamp had made himself so unpopular that Richard had been obliged to supersede him, appointing in his place Walter of Coutances, Archbishop of Rouen. After distributing judicious rewards and punishments, raising

what money he could, making arrangements for the governance of the kingdom, and being crowned again, Richard proceeded to France, and spent the rest of his life there, warring against Philip. England was governed in his absence by Hubert Walter, Archbishop of Canterbury, who by the measures he took to raise the vast sums demanded by his master trained the English people in habits of self-government. Richard was shot, on April 7, 1199, by an archer of the Viscount of Limoges, while besieging that nobleman's castle of Chalus-Chabrol, and was buried in the abbey church of Fontevraud.

**Richard II., King of England;** son of the Black Prince and Joanna of Kent; born in Bordeaux, Jan. 6, 1367; was acknowledged by Parliament heir to the crown on the death of his father in 1376, and succeeded his grandfather, Edward III., on June 21, 1377. The government was entrusted to a council of 12, from which the king's uncles, John of Gaunt, Duke of Lancaster, Edmund, Earl of Cambridge, and Thomas, Earl of Buckingham, were excluded. Nevertheless the central figure during the early years of this reign, as he had been during the last years of the preceding reign, was John of Gaunt, whose overreaching ambition and inability were a fruitful source of disquietude.

The imposition of a graduated poll-tax in 1380 provoked popular risings, directed principally against the gentry and landholders, in nearly all parts of the kingdom, at Whitsuntide in the following year. The men of Essex and Kent, to the number of 100,000, marched on London. The former body, whom the king met at Mile End on June 14, consented to return home when the young monarch assured them he would grant their requests. The men of Kent, after destroying the Savoy, burning Temple Bar, opening the prisons, and breaking into the Tower and slaying the Archbishop of Canterbury, met the king at Smithfield (15th). During the negotiations, William Walworth, the mayor of London, struck down Wat Tyler, the leader of the insurgents. The king immediately rode among them, exclaiming he would be their leader, and granted them the concessions they asked. From



the fact that the insurgents directed their enmity against himself and the advisers of the king, John of Gaunt saw that he could never hope to succeed in his ambitious schemes in England; and from this time he kept very much in the background, till in 1386 he carried himself and his restless plottings to Spain and Gascony. Richard in 1390 made him Duke of Aquitaine for life. In 1385 Richard invaded Scotland, and took Edinburgh and burned it; but, not encountering the Scotch, returned home.

On May 3, 1389, Richard suddenly declared himself of age, and proceeded to govern on his own responsibility. For eight years he ruled as a moderate constitutional monarch, and the country enjoyed peace—hostilities with France were not renewed after 1388—and was fairly prosperous. But in 1394 Richard's first wife, Anne of Bohemia, whom he had wedded in 1382, died, and two years later he married Isabella, daughter of Charles VI., of France, a girl of eight. In the Parliament of 1397 he began to assert the pretensions of an absolute monarch. On July 8 he had Gloucester, Arundel, and Warwick arrested on the charge of conspiring against the crown. Arundel was beheaded; Gloucester was sent a prisoner to Calais, and died there in prison, a fortnight after his arrest; and Warwick was banished to the Isle of Man. Thomas Arundel, Archbishop of Canterbury, was also banished.

Richard soon aroused the slumbering discontent of his subjects by his unjust methods of raising money, principally by means of forced loans, and by his arbitrary and despotic rule. In the beginning of 1398 the Duke of Norfolk and the Duke of Hereford were accused to the king of having spoken treason against him. Richard banished them—Norfolk for life and Hereford for 10 years. In January, 1399, John of Gaunt died, and Hereford succeeded him as Duke of Lancaster; but the king refused to give up to the exile the lands of his dead father. Richard in May went over to Ireland, which he had previously visited at the head of a military expedition in 1394–1395. Henry of Lancaster seized on the opportunity afforded by the king's absence, and landed on July 4. Richard at once hurried back, but had

neither heart nor power to withstand his cousin. He submitted to Lancaster at Flint Aug. 19, was carried to London, and placed in the Tower. On Sept. 29 he resigned the crown, and on the following day was likewise deposed by the Parliament, which chose Henry of Lancaster as his successor.

A month after his resignation Richard was condemned to perpetual imprisonment by Parliament. His fate is wrapped in obscurity, beyond the almost certain fact that he met a violent death.

**Richard III., King of England;** son of Richard, Duke of York, a descendant of Edward III.; born in Fotheringay Castle, Oct. 2, 1452. After the defeat and death of his father in 1460 he was sent, along with his brother George, to Utrecht for safety, but returned to England after his eldest brother Edward won the crown (1461). Two years later he was created Duke of Gloucester, his brother George being made Duke of Clarence. In the final struggle between the York and Lancaster factions he took an active share. All through the reign of Edward IV. he gave valuable and faithful support to his brother, and was rewarded by him with every confidence, and with numerous high offices.

In 1472 he married Anne, the younger daughter of Warwick the Kingmaker, who had been betrothed to the murdered Prince Edward. In 1482 he was put in command of the army that invaded Scotland. Along with the Duke of Albany he entered Edinburgh; but his one warlike achievement was the capture of Berwick town and castle. In the following year, while still in Yorkshire, he heard of King Edward's death (April 9), and learned that he himself had been named guardian and protector of his son and heir, Edward V., then aged 13. On his way S. the Protector arrested Earl Rivers and Lord Richard Grey, the uncle and step-brother of the young king, and confined them in his castles.

The arrest of Rivers and Grey had put the king entirely into his hands, for the queen-mother had hastened to take sanctuary at Westminster. On June 13 Gloucester suddenly accused Lord Hastings, an influential member of the council, of treason, arrested him



there and then, and had him instantly beheaded. On June 16 the queen-dowager was induced to give up, at the demand of Richard and the council, her other son, the little Duke of York. He was put into the Tower to keep his brother, the king, company. On the Sunday following (22d) a certain Dr. Shaw preached at St. Paul's cross that the children of Edward IV. were illegitimate. Three days later the Parliament desired Richard to assume the crown; on the next day (June 26, 1483) he declared himself king, and on July 6 was crowned in state by Cardinal Bourchier.

Shortly after his coronation Richard set out on a tour through the kingdom, and during the course of it he was surprised by the intelligence that Buckingham was plotting with the friends of Henry Tudor (afterward Henry VII.), to effect his overthrow and proclaim Henry king. But the attempted rising soon collapsed, and Buckingham was taken and on Nov. 2 executed. It seems to have been shortly before this that Richard contrived the foul crime that has branded him name with infamy, the murder of his nephews in the Tower. The deed was done so secretly by Sir James Tyrrell, one of Richard's devoted followers, and a couple of hirelings, that the nation did not know of it till some time after.

During the remainder of his short reign Richard directed all his energies to baffling the plans of Richmond, and to making preparations to meet the invasion which he saw to be imminent. Henry of Richmond at length landed at Milford Haven on Aug. 7, 1485. Richard met him at Bosworth in Leicestershire on the 22d, and there lost his kingdom and his life.

**Richard Plantagenet, King of the Romans**; second son of John, King of England; born Jan. 5, 1209. For some years he acted with the English barons, to many of whom he was closely related by his marriage with Isabel, Countess of Gloucester, daughter of the Earl of Pembroke. In 1240-1241 Richard was away on a crusade, and the next year he was with his brother in Gascony; and in 1244 he married Sanchia of Provence, sister of Queen Eleanor, and this second marriage drew him away from the baronage. In

1257 he was elected by a majority titular king of the Romans, and was soon afterward crowned at Aix-la-Chapelle. In the great struggle which took place between Henry III. and his nobles Richard at first acted as a peacemaker. Subsequently, however, he sided with his brother against Simon de Montfort; and he was taken prisoner at Lewes, and imprisoned for a year, till the battle of Evesham (1265) set him free. In 1267 he was a third time married, to Beatrice, niece of the Elector of Cologne. Richard died at Kirkham, Dec. 12, 1271.

**Richards, Charles Brinckerhoff**, an American engineer; born in Brooklyn, N. Y., Dec. 23, 1833; was superintendent of Colt's Arms Company, of Hartford, for many years. In 1861 he invented the Richards indicator for steam engines; was one of the United States expert commissioners to the Paris Exposition in 1889; editor of the engineering and technical terms in "Webster's International Dictionary."

**Richards, Charles Herbert**, an American clergyman; born in Meriden, N. H., March 18, 1839; was graduated at Yale University in 1860, and at the Andover Theological Seminary in 1865; and afterward served in the ministry of the Congregational Church. He conducted the Monona Lake Assembly in Madison, Wis., in 1881-1884; was president of the Wisconsin Home Missionary Society in 1885-1890; lectured on Hymnology and Church Music at Yale University in 1895.

**Richards, Edgar**, an American chemist; born in New York, Feb. 23, 1858; took a course in chemistry at the School of Mines in Columbia University in 1876-1881; was assistant chemist in the United States Department of Agriculture in 1882-1887; assistant chemist in the Internal Revenue Bureau of the United States Treasury Department in 1887-1892; president of the Washington Chemical Society in 1889.

**Richards, Laura Elizabeth**, an American writer of juvenile books, daughter of Julia Ward Howe; born in Boston, Mass., in 1850. She published a great number of children's books.

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**Richards, William Trost**, an American landscape and marine painter; born in Philadelphia, Pa., Nov. 14, 1833. From 1878 till 1880, he had a studio in London, England. He then returned to Philadelphia. At the Metropolitan Museum, in New York city, is a series of 47 water-color marines and landscapes, painted by him in 1871-1876. His "Wissahickon" was on exhibition at the Centennial Exposition in 1876. In the Corcoran Art Gallery, Washington, D. C., is hung his "On the Coast of New Jersey." He died Nov. 8, 1905.

**Richardson, Abby Sage**, an American lecturer and writer on literary topics; wife of Albert Deane Richardson; born in Massachusetts, in 1837. She died in Rome, Italy, Dec. 5, 1900. She was a woman of remarkable ability, and gave an admirable example in the devoted care of her children.

**Richardson, Benjamin Ward**, an English physician; born at Somerby, Leicestershire, 1828; graduated in medicine at St. Andrews University in 1854. In 1855 he edited the "Journal of Health;" and he gained the Astley Cooper prize by his treatise on "The Cause of the Coagulation of the Blood," and the Fothergillian gold medal by a disquisition on the "Diseases of the Fœtus," in 1856. He originated the use of ether spray for the local abolition of pain in surgical operations, and introduced methylene bichloride as a general anæsthetic. He was a fellow of the Royal College of Physicians and of the Royal Society. He was knighted in 1893, and died in 1896.

**Richardson, Charles**, an English lexicographer; born in 1775, died 1865. He was trained as a barrister, but devoted himself to literature. In 1815 he published "Illustrations of English Philology." In 1818 he undertook the lexicographical articles in the "Encyclopædia Metropolitana," and afterwards published his great work, a "New Dictionary of the English Language" (2 vols. 1835-37). He contributed frequently to magazines.

**Richardson, Henry Hobson**, an American architect; born in New Orleans, La., in 1838; was graduated at Harvard in 1859. He designed some of the most beautiful buildings in this

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country. He died in Boston, Mass., April 28, 1886.

**Richardson, Sir John**, a British naturalist and Arctic traveler; born in Dumfries, Scotland, Nov. 5, 1787. After studying medicine at the University of Edinburgh he entered the royal navy, in 1807, as assistant-surgeon. He served on various stations till 1819, and was surgeon and naturalist to the Arctic expeditions of 1819-1822 and 1825-1827, under Sir John Franklin, exploring on the latter occasion the shores of the Arctic Ocean between the Mackenzie and Coppermine rivers. In March, 1848, he took charge of an expedition to search for Franklin. He died near Grasmere, England, June 5, 1865.

**Richardson, Samuel**, an English novelist; born in Derbyshire, in 1689. In 1706, at the age of 16, he was bound by his own wish to John Wilde of Stationers' Hall. From 1713 to 1719 he worked as a journeyman printer. In the latter year he opened an establishment of his own, and shortly after married Miss Martha Wilde, long popularly believed to be his master's daughter, but the child of a Mr. Allington Wilde. He became master of the Stationers' Company (1754).

He printed more than one newspaper, and by the favor of Speaker Onslow obtained the printing of the journals of the House of Commons, 26 volumes of which passed through his establishment. He was over 50 when two bookselling friends invited him to prepare a volume of familiar letters in a common style, on such subjects as might be of use to those country readers who were unable to indite for themselves. Hence sprung "Pamela," published in November, 1740. Its title was "Pamela: or Virtue Rewarded."

In February followed a second edition; a third succeeded in March, and a fourth in May. Grub street fastening promptly on this unexampled popularity, hastily put together for a sequel a "Pamela in High Life."

Eight years elapsed before Richardson published another novel. "Clarissa; or the Adventures of a Young Lady," known generally as "Clarissa Harlowe." The heroine is drawn with a tenacity of insight to which "Pamela" could scarcely pretend; and the

chief male character, that of Lovelace, is scarcely inferior.

Having drawn the ideal woman in "Clarissa," Richardson proceeded, some five years later, to portray, in "Sir Charles Grandison," the perfect man—"the man of true honor." This is a work of much greater ability than "Pamela," but still far below "Clarissa." In later life a nervous disease grew upon him, which terminated in 1761 by a fit of apoplexy, of which he died.

**Richardson, William Adams**, an American jurist; born in Tyngsboro, Mass., Nov. 2, 1821; was graduated at Harvard University in 1843, and at its law school in 1846, and was admitted to the Boston bar in 1848. In 1856 he was appointed judge of the probate court of Middlesex county, and in 1869, assistant secretary of the United States Treasury, becoming secretary in 1873. He resigned that office in 1874 to accept a seat on the bench of the United States Court of Claims, being made chief-justice of the court in 1885. He died in Washington, D. C., Oct. 19, 1896.

**Richelieu, Armand Jean Dupleixis, Cardinal, Duc de**, a French statesman; born in Richelieu, Sept. 5, 1585. He abandoned a military career for the Church. Representative of the Poitou clergy at the States-general in 1614, he attracted the notice of the queen-mother, and rose in 1616 to be secretary of war and foreign affairs; but the downfall of Marshal d'Ancre, the queen-regent's favorite, in April, 1617, sent him back to his diocese. In 1622 he was named cardinal and in 1624 Minister of State. His first important measure was the blow to Spain of an alliance with England, cemented by the betrothal (1625) of the king's sister, Henrietta, with Charles, then Prince of Wales. His next task was to destroy the political power of the Huguenot party. After a 15 months' siege, concentrating all his energy on the task, the great stronghold of La Rochelle was starved into submission, Oct. 30, 1628. Early in 1630 he entered Italy and soon reduced Savoy to submission. The first treaty of Cherasco (April, 1631), ended the Italian war, the second gave France the important strategic position of Pinerolo.

In July, 1632, Richelieu had seized the duchy of Lorraine. He continued his intrigues with the Protestants against Ferdinand, but till 1635 he took no open part in the war. In May of that year, after completing his preparations he declared war on Spain and at once placed in the field an army of 132,000 men. But his first efforts were unsuccessful.

With 30,000 foot and 12,000 horse he swept the enemy out of Picardy, while his ally Bernhard drove them across the Rhine, and in 1638 destroyed the imperial army in the decisive battle of Rheinfelden. The unexpected death of Bernhard threw the fruit of his victories into the hands of Richelieu—revolts in Catalonia, and the loss of Portugal; the victories of Wolfenbittel (1642) and Kempten (1642) over the Imperialists in Germany; and at length in 1641 in Savoy also in the ascendancy of the French party. Another triumph that same year was the speedy collapse of the Imperialist invasion in the N. by the Count of Soissons, who perished in the first battle. The failure to capture Taragona was the one exception to the complete triumph of the cardinal's latest years.

The last conspiracy against him was that of the grand-querrey, the young Cinq-Mars, whose intrigues with Gaston, the Duke of Bouillon, and the Spanish court were soon revealed to the cardinal. When the hour was ripe he placed in the king's hands at Tarascon proofs of the traitorous plot with Spain, and was given full powers as lieutenant-general of the realm. Cinq-Mars and De Thou were at once arrested, and Gaston of Orleans hastened to buy his own security by betraying his accomplices. Cinq-Mars and De Thou were executed at Lyons in the autumn of 1642. But the great minister was himself dying in the hour of his greatest triumphs. He died Dec. 4, 1642, bequeathing Mazarin to the king as his successor.

**Richmond**, a town in Madison co., Ky.; 25 miles S. E. of Lexington. It is memorable as the scene of one of the most desperate battles of the Civil War. The Confederate general, E. Kirby Smith, in command of 18,000 troops, attacked a much larger Union army under command of Gens. M. D.

Manson and William Nelson, and after a three hours' battle utterly defeated the Union forces, whose loss including killed, wounded and prisoners, was 5,000. Pop. (1930) 6,495.

**Richmond**, a city, port of entry, capital of the State of Virginia, and county-seat of Henrico co.; on the James river; 116 miles S. E. of Washington, D. C. The city is about 127 miles from the ocean. The James river is navigable for large vessels. The city is built on seven hills, and is surrounded by beautiful scenery.

In 1926 it was reported that there were 301 manufacturing plants employing 18,137 wage earners, and paying \$17,960,860 for wages and \$83,973,048 for raw materials, and yielding a combined output having a value of \$157,449,998.

The city covers an area of twenty-five square miles and has 310 miles of streets, a system of waterworks that cost over seven and one half million dollars.

The public school department in 1926 reported that there were 44 school buildings, housing 95 schools, with 30,980 pupils and 866 teachers, and having a daily attendance of 25,554.

Richmond was the home of Edgar Allen Poe, one of America's greatest authors.

The Capitol, which stands on Shockoe Hill, and is surrounded by most of the other public buildings, is an imposing structure, dating from 1785. In the Central Hall, surmounted by a dome, are a statue of Washington and bust of Lafayette, Gen. Fitz-Hugh Lee, and others. The Senate Chamber, to the right, was used as the Confederate House of Representatives during the Civil War. The House of Delegates, to the left, contains portraits of Chatham and Jefferson, and was the scene of Aaron Burr's trial for high treason in 1807 and of the State Secession Convention in 1861. The executive mansion of the Confederate States, formerly the residence of Jefferson Davis, has been converted into a museum which contains many relics of the Civil War. The other notable public buildings include the City Hall, State Library, State Penitentiary, almshouse, custom house, etc. The prominent education-

al institutions are Richmond College (Bapt.), St. Joseph Female Academy (R. C.), the Medical College of Virginia, University College of Medicine, Women's College, and Mechanics' Institute.

Richmond is said to have first been settled in 1609. Fort Charles was built as a defense against the Indians in 1644-1645. The city was incorporated in 1742, and became the capital of the State in 1779. In June, 1861, it was selected as the Confederate capital, and from that period was the objective point of a series of formidable military expeditions. Pop. (1920) 171,667; (1930) 182,929.

During the last three years of the Civil War (1862-1865) battles raged all round Richmond, and remains of the fortified lines constructed to protect the city are visible in various parts of the environs. Both the inner and outer fortifications may be seen from the Brook Road, which leads to the Lakeside Club House, with its golf links, bowling alleys and boating lake. The chief direct attack on Richmond was made on May 15, 1862, when the Union fleet attempted, without success, to force its way past the batteries at Drewry Bluff, on the James river, 7 miles below the city. Simultaneously General McClellan advanced with the land forces up the peninsula between the York and James rivers and invested Richmond on the E. and N. This led to the hardly contested but indecisive battle of Seven Pines or Fair Oaks (May 31, 1862), in which the Confederates under Gen. Joseph E. Johnston attacked McClellan's left wing, to the S. of the Chickahominy. Large cemeteries and a park now mark the spot, 7 miles to the E., reached by the West Point railroad. The district is swampy, and McClellan lost more men by pestilence than in fighting. Gen. Robert E. Lee assumed command of the Confederate forces and made an attempt, in combination with Gen. "Stonewall" Jackson, to overwhelm McClellan's right wing, which was posted at Mechanicsville, on the Chickahominy, 5½ miles to the N. of Richmond, and thus began the famous Seven Days' Battle (June 28-July 2, 1862). Mechanicsville was followed by the battles of Gaines's Mill, Cold Harbor, Savage's

Station, Frazier's Farm, and Malvern Hill. The upshot of this series of contests, in which 40,000 men fell, was the relief of Richmond, as the Union troops were compelled to retreat to Malvern Hill, 15 miles to the S. E., where they repelled the Confederates in their last attack but soon after withdrew to Harrison's Landing, on the James River. During 1863 there were no direct attacks on Richmond. In May, 1864, General Grant marched down through the "Wilderness" and attacked Lee in his entrenched position at Cold Harbor (June 3, 1864), and lost 15,000 men without making much impression on the enemy. He then transferred his army to the S. side of the James; and the later stages of the war were rather a siege of Petersburg than of Richmond.

**Richmond**, city and capital of Wayne county, Ind.; on the White river and the Grand Rapids & Indiana and other railroads; 68 miles E. of Indianapolis; manufactures church furniture, undertakers' supplies, farm implements, brass and iron goods, carpets, and lawn-mowers; and is the seat of Earlham College (Friends) and the Eastern Asylum for the Insane. Pop. (1930) 32,493.

**Richter, Johann Paul Friedrich**, known by his pen-name of Jean Paul, a German humorist; born in Wunsiedel, North Bavaria, March 21, 1763. His first literary "children" were satires; but he could get no publisher for them till in 1783 Voss of Berlin gave him 40 louis d'or for "The Greenland Lawsuits."

For three years Jean Paul struggled on at home, his mother spinning hard for bread, he helping with a few florins he earned by his pen. He read enormously, omnivorously. In the beginning of 1787 he began to teach the children of different families in the district, and of course taught by original methods. All this time he still went on writing. "The Invisible Lodge" was his first literary success; "Hesperus" made him famous. In 1796 Charlotte von Kalb wrote to express her admiration of the book; and a few months later, at her invitation, Jean Paul visited Weimar. There Goethe received him politely; that, too, was Schiller's attitude, when Jean Paul went on to Jena to see him.

Herder and his wife, on the other hand, greeted the young romance-writer with overflowing admiration. He settled finally at Baireuth in 1804. He shortly afterwards received a pension from the prince-primate, Dalberg, which was continued by the King of Bavaria. While staying in Berlin in 1801 he married Karoline Mayer, a union which proved very happy. His last years were saddened by the death of his only son in 1821. Jean Paul's works (he wrote under this name) are characterized by a deeply reflective and philosophic humor, but are often whimsical and fantastic. They are full of good things, but show no sense of proportion, arrangement, or artistic finish. His writings, other than those noted above, include works connected with the history and politics of the time. He died Nov. 14, 1825.

**Richthofen, Ferdinand, Baron von**, a German geographer; born in Karlsruhe, Silesia, May 5, 1833; in 1860 accompanied a Prussian expedition to Eastern Asia. The next 12 years he spent in traveling through Java, Siam, Burma, California, Sierra Nevada, and China and Japan. After his return to Europe (1872) he was appointed president of the Berlin Geographical Society, Professor of Geology at Bonn, of Geography at Leipzig, and at Berlin, and in 1902 director of the newly founded Institut für Meereskunde. His reputation as a geographer is built principally upon his "China." He died Oct. 7, 1905.

**Ricinus**, a genus of plants, order Euphorbiaceae. *R. communis* is the palma christi or castor-oil plant, a native of the East and West Indies and Florida. Castor oil is obtained from the seeds, either by expression with or without the aid of heat, or by decoction, or sometimes by the aid of alcohol.

**Rickets**, a disease peculiar to infancy, chiefly characterized by changes in the texture, chemical composition, and outward form of the bony skeleton and by altered functions of the other organs, transient for the most part, but occasionally permanent.

**Ricketts, James Brewerton**, an American military officer; born in New York city, June 21, 1817; was graduated at the United States mili-



tary academy, in 1839; was a captain in the regular army in 1852; and gained a record for excellent service during the Mexican War. In 1861 he was appointed a Brigadier-General of volunteers, and commanded a division at the battle of Antietam, in September, 1862. He was in the thick of the battle of the Wilderness, May 5 and 6, 1864; was severely wounded at the battle of Cedar Creek Oct. 19, 1864; and was brevetted Major-General, U. S. A., in 1865. He served in the Army of the Potomac from the first battle of Bull Run till Petersburg was besieged in 1864. He died in Washington, D. C., Sept. 22, 1887.

**Rickman, Thomas**, an English architect; born in Maidenhead, Berkshire, in 1776; seems to have always had a love for architecture, and to have studied it carefully. Having sent in a design for a church that proved successful in a government competition, he settled at Birmingham as an architect. He died in March, 1841.

**Riddle, John Wallace**, diplomat, b. July 12, 1864, Philadelphia, Pa. He entered the diplomatic service in 1893; became secretary of the embassy to Russia; minister to Serbia and Rumania in 1905-1906; Minister to Russia in 1906-1909.

**Rideau Canal**, a Canadian canal constructed between Kingston on Lake Ontario and Ottawa as a through waterway by means of the river Ottawa to Montreal, the St. Lawrence route being interrupted by rapids. Canals have since been built along the St. Lawrence to avoid these, and the Rideau is now little used.

**Rideing, William Henry**, an American author; born in Liverpool, England, Feb. 17, 1853. In 1881 he became associate editor of the "Youths' Companion."

**Riders**, additional provisions of a bill under the consideration of a legislative assembly, having little connection with the subject-matter of the bill. The consequence of this custom is, practically, a limitation of the veto power of the executive. It has been proposed frequently that the Constitution of the United States be so amended that the President could veto single objectionable items, without affecting the main purpose of bills.

**Ridgway, Robert**, an American naturalist; born in Mt. Carmel, Ill., July 2, 1850. He early turned his attention to natural history and was zoölogist to the United States geological expedition under Clarence King in the Western States in 1867-1869. He was one of the founders of the American Ornithologists' Union, of which he became president.

**Riding**, the art of sitting on horseback with firmness, ease, and gracefulness, and of guiding the horse and keeping him under perfect command.

**Ridley, Nicholas**, an English clergyman, Bishop of London in the reigns of Edward VI., and his successor Mary; born about the commencement of the 16th century; filled the office of proctor to Cambridge University. In 1547 he was chosen to the see of Rochester, and in 1550 superseded Bonner as Bishop of London. On the death of Edward he was involved in an attempt to secure the Protestant ascendancy by placing the Lady Jane Grey on the throne. This, together with his connection with Cranmer, led to his being tried for heresy; he was found guilty, and condemned to the stake. This sentence he underwent with the greatest fortitude, in company with his friend and fellow-sufferer Latimer, Oct. 16, 1553, in Oxford.

**Ridpath, John Clark**, an American educator; born in Putnam co., Ind., April 26, 1840; and later held a professorship in Baker University, Kansas. In 1869 he became Professor of English Literature at Asbury University, Indiana, and was elected its vice-president in 1879. In 1874-1875 he published a "History of the United States" which he supplemented with another in 1877. In 1876 he issued a "School History," and in 1879 an "English Grammar." Desiring to devote his whole time to literature he resigned his university offices. He died in New York city, Aug. 1, 1900.

**Riel, Louis**, a Canadian insurgent, born in Boniface, Oct. 23, 1844. He led the Metis' Red River rebellion in 1869, which was subdued by a Canadian force. He fled from the territory to escape arrest, and returned after peace terms had been arranged.

He was elected to the Dominion Parliament in 1873, but was not allowed to take his seat. His attempt to create resistance in 1885 was more successful, but the rebellion was short-lived. Riel was captured, tried for treason, and was sentenced to death. He was executed Nov. 16, 1885, at Regina in the Northwestern Territory.

**Rienzi, Nicola Gabrini**, a Roman patriot; born about 1310. He was sent by his fellow citizens to Clement VI., at Avignon, in order to prevail on that pontiff to return to Rome. His eloquence pleased the Pope, though it did not persuade him; and Rienzi on his return formed the design of making himself master of Rome. Having gained a considerable number of partisans, he entered the Capitol, harangued the people, and elevated the standard of liberty. He designed to unite the whole of Italy into one great republic, with Rome for its capital. At length a conspiracy was formed against him; and having lost the popular favor by his arrogance and tyranny, he was compelled to seek safety in flight, but was taken and cruelly put to death in 1352.

**Rietbok**, in zoölogy the reed-buck, a South African antelope. It is about four feet in length, and nearly three feet high at the shoulder.

**Rifle**, a portable firearm, the interior surface of the barrel of which is grooved, the channels being cut in the form of a screw. The number of these spiral channels or threads, as well as their depth, varies in different rifles, the most approved form being with the channels and ridges of equal breadth, and the spiral turning more quickly as it nears the muzzle. The bullet fired is now always of an elongated form. The great advantage gained by a weapon of this construction is that the bullet discharged from the piece, by having a rotatory action imparted to its axis coincident with its line of flight, is preserved in its direct path without being subject to the aberrations that injure precision of aim in firing with unfired arms. As a necessary consequence of the projectile being carried more directly in its line of aim, its length of range, as well as its certainty in hitting the object is materially increased. Sport-

ing rifles have a shorter range and inferior velocity to the best military weapons, their object being not extreme range or penetration, but great force at impact to produce such a shock as will paralyze the animal shot.

**Rifle Bird**, often spoken of as one of the "Birds of Paradise;" is perhaps the best-known of the genus Pitlorhis, which comprises four species confined to Australia and to New Guinea. *P. paradiseus* inhabits the S. E. districts of Australia, and is found only in very thick "bush." The male is regarded as more splendid in plumage than any other Australian bird.

**Riga**, a city and capital of the new republic of Latvia, formerly a Russian province, on the Dwina river, 7 miles from the mouth of the river, and 350 S. W. of Petrograd, via Pskoff. The old town has narrow streets and mediæval houses and stores; but the suburbs are laid out in broad streets with handsome buildings. The chief edifices are the cathedral built in 1204, burned down in 1547, but rebuilt; St. Peter's Church (1406), with a steeple 460 feet high; the castle of the old Knights of the Sword, built 1404-1515, the former residence of the grand-master of the order; and several old guild houses and Hanseatic halls. Riga was founded in 1201 by Albert, Bishop of Livonia, and soon became a first-rate commercial town, and member of the Hanseatic League. In 1710 it was annexed to Russia; on Aug. 16-21, 1915, its Gulf was the scene of a severe German naval defeat; and on Sept. 3, 1917, the city was occupied by the Germans. Pop. (1925 Est.) 337,700. See APPENDIX: *World War*.

**Riggs, John Davis Seaton**, an American educator; born in Washington, Pa., Jan. 29, 1851; was graduated at the University of Chicago in 1878; president of Ottawa (Kan.) University, 1896-1905, and of Shurtleff College, 1905-10; principal of Wolcott School, Denver, Col., from 1913; author of articles, lectures, and addresses.

**Riggs, Kate Douglas Wiggin**, an American author; born in Philadelphia, Pa.; was graduated at Abbott Academy in 1878; organized the first free kindergarten for poor children

on the Pacific coast, and continued interested in the work. Died, 1923.

**Riggs, Robert Baird**, an American chemist; born in Hazelwood, Minn., May 22, 1855; was graduated at Beloit College, Wis., in 1876; Professor of Chemistry at the National College of Pharmacy in 1885-1887; and later became Professor of Chemistry at Trinity College, Hartford.

**Rights, Declaration and Bill of.** Two documents adopted in England; the Declaration (February, 1689), stated that James II. had committed certain acts contrary to the law, and declared the throne vacant. The Bill (October, 1689), set forth that the monarch had no power of suspending laws, the levying of money without consent of parliament is illegal; also the keeping of a standing army in time of peace without accession thereto by parliament is also illegal; election of members to parliament should be free; that free speech should be granted in parliament; condemns excessive bail and excessive fines or unusual punishments; claims the right of petition to the crown, and trial by jury; that parliament should meet frequently; and that all ecclesiastical courts are illegal. It also treats of succession to the crown.

**Rights of Man, Declaration of the,** a famous statement of the constitution and principles of civil society and government adopted by the French National Assembly in August, 1789. In historical importance it may fairly be ranked with the English Bill of Rights and the American Declaration of Independence.

**Riis, Jacob August**, born in Ribe, Denmark, May 3, 1849, son of Niels Edward Riis. Came to New York, and after some interesting adventures joined the staff of the New York "Sun" as a police reporter. Kept his eyes open to his surroundings and was first to call public attention in vivid and impressive style to the needs and struggles of the poor of America's metropolis. His book, "How the Other Half Lives," awakened philanthropy to a sense of its duty to unfortunate humanity in the great cities. He died May 26, 1914.

**Riker, Albert Burdsall**, an American clergyman; born in New

Albany, O., Oct. 19, 1852; was graduated at Wesleyan University in 1879; held pastorates in Ohio, Tennessee, and West Virginia, and in 1898 became president of Mount Union College, Alliance, O.

**Riley, Benjamin Franklin**, an American clergyman; born in Pineville, Ala., July 16, 1849; was graduated at Erskine College, South Carolina, in 1871; entered the ministry of the Baptist Church in 1872; was president of Howard College in 1888-1893; Professor of English Literature at the University of Georgia, 1893-1900.

**Riley, Franklin Lafayette**, an American educator; born near Hebron, Lawrence co., Miss., Aug. 24, 1868; was graduated at Mississippi College in 1889; later studied at Johns Hopkins University; was Professor of History at the University of Mississippi, 1897-1914, and of the same at Washington and Lee University from 1914.

**Riley, James Whitcomb**, an American poet; born in Greenfield, Ind., in 1853. His contributions to newspapers and magazines first attracted public attention about 1875. His writings soon became so popular that he devoted himself to literature and public readings of his work with great success. His poems are characterized by both humor and pathos and by their sympathy with the simplest phases of life. He died July 22, 1916.

**Rinehart, William Henry**, an American sculptor; born in Carroll co., Md., Sept. 13, 1825; went to Baltimore in 1846; and found employment at his trade of stone cutter. He attended night school at the Maryland Institute and studied art; went to Italy in 1855 and studied under the best masters in sculpture. He opened a studio on his return to Baltimore, but in 1858 established himself in Rome. He completed Crawford's bronze doors for the National Capitol at Washington. He died in Rome, Oct. 28, 1874.

**Riner, John A.**, an American jurist; born in Preble co., O., in 1850; was graduated at the University of Michigan in 1879; later removed to Wyoming; became city attorney of Cheyenne in 1881, United States dis-

trict attorney of Wyoming in 1884, a member of the upper house of the Territorial legislature in 1886, and of the Constitutional Convention in 1889; later was a member of the State Senate and on Sept. 23, 1890, he was appointed United States district judge for the district of Wyoming.

**Ring**, any circle or section of a cylinder. Rings of gold, silver, and of

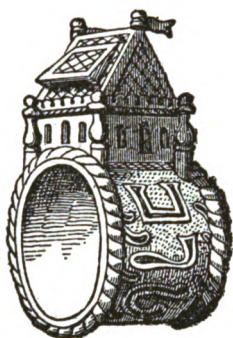


FIG. 1.

other metals and materials have been worn in all times and countries, and while they have been used to decorate the ears, neck, nose, lips, arms, legs, and toes, finger rings have always occupied the most important and significant place among such ornaments. From the earliest period of civilized relationships the finger ring was a convenient means for carrying the signet of its wearer. Fig. 1 shows a Jewish marriage ring beautifully wrought in gold filigree, and richly enamelled. Fig. 2 shows a form of betrothal ring called a gimmel, or linked ring, which was used in later times; the upper figure shows the three parts brought together, the lower figures the parts separately.

**Ringbone**, an exostosis or bony tumor mostly met with on the coronet of overworked horses, but sometimes seen on colts.

**Ring-dove**, or **Cushat**, the largest of the pigeons inhabiting Great Britain, a bird which occurs very generally throughout the wooded parts of

Europe. It is migratory in countries in which the severe winters preclude the possibility of its obtaining a due supply of food, and even in Great Britain, in which it permanently resides, it appears on the approach of winter to assemble in flocks, and to perform a limited migration, probably in search of food.

**Ringed Snake**, a harmless colubrine snake with teeth so small as to be incapable of piercing the skin. It is common in England.

**Ring Money**, a form of currency consisting of rings which seems to have originated with the Egyptians. It is still used in parts of Africa, and is manufactured in Birmingham for the use of African traders.

**Ring Ouzel**, a species of thrush, rather larger than a blackbird. It is a native chiefly of the W. parts of Europe.



FIG. 2.

**Ringworm**, an eruptive disease of the skin, more particularly on the head, and of which there are several kinds.

**Rio de Janeiro**, or simply **Rio**, a city and seaport, capital of Brazil and of the province of the same name, the largest and most important city of South America; on the W. side of one of the finest bays in the world, 80 miles W. of Cape Frio. The city stands on a tongue of land close to the shore, on the W. side of the bay, at the foot of several high mountains which rise behind it. The houses are generally built of stone or brick. The



streets are straight, well paved, and have excellent footpaths. The convents and churches are numerous, but none of them can be called fine buildings. Parallel with the beach runs the main street, called Rua de Direita, from which the minor streets branch off at right angles and are intersected by others at regular distances. The imperial palace skirts the beach, and is seen to great advantage from the landing place, which is within 60 yards of its entrance. The other public buildings are the naval and military arsenal, a public hospital, a national library containing about 100,000 volumes. The entrance into it from the sea does not exceed a mile from point to point; it afterward widens to about three or four miles. This city is the chief mart of Brazil. Pop. province (1926 Est.) 1,559,371; city, 1,185,886.

**Rio Grande, Rio Grande del Norte, or Rio Bravo del Norte.** See NORTE, RIO GRANDE DEL.

**Rio-Grande-do Sul**, the most southern province in Brazil, bounded partly by the Atlantic, and bordering on Uruguay and the Argentine Republic. It has an area of 91,333 square miles; pop. (1926 Est.) 2,182,713.

**Rio Negro** ("black river"), the name of numerous streams, of which two are important: (1) A river of South America, and principal tributary of the Amazon. It rises in Colombia, and joins the Amazon after a course of about 1,000 miles, at Manaos, Brazil. (2) A river of South America forming the boundary between the Argentine Republic and Patagonia. It rises in the Andes in Chile, and is about 700 miles long.

**Riordan, Patrick William**, an American clergyman; born in New Brunswick, Aug. 27, 1841; removed to Chicago; held charges in Illinois till 1883, when he was consecrated titular archbishop of Cabesa and coadjutor of the Archbishop of San Francisco, Cal., whom he succeeded Dec. 28, 1884. He died Dec. 27, 1914.

**Riordan, Roger**, an Irish-American journalist; born in 1848. His publications include "Sunrise Stories," etc. He died in 1904.

**Riot**, a disturbance of the public peace, attended with circumstances of tumult and commotion.

**Rio Teodoro**, name given by the Brazilian Government to a river discovered and explored by Theodore Roosevelt in 1914.

**Ripley, George**, an American author; born in Greenfield, Mass., Oct. 3, 1802; educated at Harvard University and Cambridge Divinity School; became a Unitarian minister in Boston; lived some years in Europe; was one of the founders of the Transcendental magazine, the "Dial," and the originator and conductor of the communistic experiment at Brook Farm. He died in New York city, July 4, 1880.

**Ripley, William Zebina**, an American educator; born in Medford, Mass., in 1867; was graduated at the Massachusetts Institute of Technology in 1890; became lecturer on Sociology at Columbia University in 1893, and Professor of Sociology and Economics at the Massachusetts Institute of Technology in 1895; was appointed expert agent on transportation for the United States Industrial Commission.

**Risley, Samuel Doty**, an American physician; born in Cincinnati, O., Jan. 16, 1845; served in the Union army during the Civil War; was graduated at the University of Iowa in 1868, and at the Medical Department of the University of Pennsylvania in 1870; made improvements on the optometer and ophthalmoscope.

**Ristori, Adelaide**, an Italian actress; born in Cividale, Italy, Jan. 29, 1822. She married the Marquis Capranica del Grillo in 1847, and afterward played in all the chief European capitals and in the United States. She died Oct. 9, 1906.

**Ritchie, Mrs. Anna Cora (Mowatt)**, an American author; born in Bordeaux, France, in 1819. She went in early life to New York. A once popular actress, she retired from the stage in 1854, and devoted herself to the production of romances and dramas with no little success. She died July 28, 1870.

**Rittenhouse, David**, an American astronomer; born near Philadelphia, Pa., April 8, 1732. Originally a clock and mathematical instrument maker, he became master of the United States mint, and succeeded Franklin as president of the Ameri-



can Philosophical Society. He was the first to use spider lines in the focus of a transit instrument. He died in Philadelphia, Pa., June 26, 1796.

**Ritter, Frederic Louis**, an American musician; born in Strassburg, Alsace, in 1834; came to the United States in 1856, and soon made a reputation both here and abroad as a writer on musical topics. He died in Antwerp, Holland, July 6, 1891.

**Ritter, Karl**, a German geographer; born in Quedlinburg, Prussia, Aug. 7, 1779; studied at Halle, became a private tutor in 1798, and in 1819 succeeded Schlosser as Professor of History at the Frankfort Gymnasium; became Professor extraordinary of Geography at the University of Berlin, where he remained till his death. His great work is "Geography in Its Relations to Nature and History," the first two volumes of which appeared in 1817-1818, but it ultimately comprised upward of 20 volumes. He died in Berlin, Sept. 28, 1859.

**Ritual**, the name of one of the service books of the Roman Church, in which are contained the prayers and order of ceremonial employed in the administration of certain of the sacraments (communion out of Mass, baptism, penance, marriage, extreme unction) and other priestly offices of the Church, forms for churchings, burials and blessing. In the Anglican Church the "Book of Common Prayer" may be said to contain the ritual.

**Ritualism**, a strict adherence to rites and ceremonies in public worship. The term is more especially applied to a tendency recently manifested in the Church of England, resulting in a series of changes introduced by various clergymen of the High Church party into the services of the Church. These changes may be described externally as generally in the direction of a more ornate worship, and as to their spirit or animating principle, as the infusion into outward forms of a larger measure of the symbolic element.

**River**. Water falling on the land in the form of rain, or resulting from melting snow, or rising to the surface in springs, flows over the surface to a lower level. Where two slopes of land

dip together the surface drainage collects to form a stream, and when evaporation is not very rapid several such streams ultimately unite and the volume of water they carry flows to the sea or to a salt lake. Small streams are termed rivulets, rills, brooks, becks, or burns; large streams are termed rivers, but the word has no precise reference to the magnitude of the stream to which it is applied.

**River Crab**, a name given to a genus of crabs inhabiting fresh water, and having the carapace quadrilateral and the antennæ very short.

**River Tortoise**, a name of a family of tortoises that are aquatic in their habits, coming to shore only to deposit their eggs. They are exclusively carnivorous, subsisting on fishes, reptiles, birds, etc. Well-known species are the soft shelled turtle and the large and fierce snapping turtle of the United States. They inhabit almost every river and lake in the warmer regions in the Old and New Worlds.

**Rives, Alfred Landon**, an American engineer; born in Paris, France, March 25, 1830; studied at the University of Virginia; was graduated at the Ecole des Ponts et Chaussees, Paris, in 1854; was assistant engineer on the completion of the National Capitol, Washington; engineer in the construction of the aqueduct in Washington; and was in charge of the United States survey for improving the Potomac river. During the Civil War he was colonel of engineers in the Confederate army; was chief engineer of the Cape Cod Canal. Died 1903.

**Rives, Amelie**, an American novelist; born in Richmond, Va., Aug. 23, 1863. "The Quick and the Dead," was her first success. She became the wife of John A. Chanler in 1888. They were divorced on account of incompatibility. In 1896 she married Prince Pierre Troubetskoy, an artist.

**Riviere, Briton**, an English subject and animal painter; born in London in 1840. He has exhibited at the Royal Academy since 1864, and is the greatest English animal painter since Landseer.

**Rixey, Presley Marion**, an American physician; born in Culpeper co., Va., July 14, 1852; was graduated at the University of Virginia in 1873;

## Rizal

appointed an assistant surgeon in the navy, Jan. 28, 1874. He became the physician of President McKinley and his family; attended Mrs. McKinley in her severe illness in San Francisco in the summer of 1901; and was with the President in Buffalo, N. Y., from the time he was shot, Sept. 6, till his death, Sept. 14, 1901. In accordance with the intention of President McKinley, Dr. Rixey was appointed by President Roosevelt surgeon-general of the navy, with the rank of rear-admiral, Jan. 21, 1902; retired 1910.

**Rizal, Jose**, a Filipino patriot; born in Catamba, Luzon, in 1861. He was the son of Tagal parents, who destined him for the Church; he was sent to Manila, where he entered the Ateneo Municipal, a school in charge of the Jesuits. In Manila Jose soon learned of the reproach attached to his Tagal origin. He was denied the honors due him as head of his class; and his patriotic poems and speeches met only the derision and hatred of the Spanish students. Though he had been destined for the Church, he studied for and took his medical degree at Manila. Then he went to Paris, Heidelberg, Leipsic, and in all these cities he continued his medical studies. He learned that Europe was almost ignorant of the Philippines, so he wrote a novel, portraying his birthland, which was published in Berlin in 1887. He wrote a sequel to it which was published at Ghent in 1891. In 1887 Rizal went to Hong Kong where he organized the famous Philippine League, which was the source of the "Revolutionary Society of the Sons of the Nation." During several years of travel he constantly agitated Filipino revolt, and then in May, 1892, returned to Manila. He was arrested and exiled to Dapitan, in one of the S. islands. In 1895 he was permitted to return to Luzon. He was, however, arrested at Barcelona and transhipped to Manila, tried and condemned to death. His last wishes, that he might be united by civil marriage with Miss Josephine Bracken, whom he first met in Hong Kong, and who had gone to Manila when his trial began; and the other that he should be shot through the breast, were granted. He was shot by a detail of native soldiers, Dec. 30, 1896.

## Roasting

**Roach, John**, an American shipbuilder; born in Mitchelstown, Ireland, in 1815; came to the United States in 1829; he established a foundry in New York city, and erected the Aetna Iron Works, where he built the first compound engines ever made in the United States. In 1871 he purchased the shipyards in Chester, Pa., and under the name of the Delaware River Iron Shipbuilding and Engine Works enlarged them till their value was estimated at \$2,000,000. He built the first ships of the new United States navy. He died in New York city, Jan. 10, 1887.

**Roads**, artificial pathways formed through a country for the accommodation of travelers and the carriage of commodities. Though the Romans set an example as roadbuilders, some of their public highways being yet serviceable, the roads throughout most of Europe were in a wretched condition till toward the end of the 18th century. France was in advance of other countries in road making; in England a decided improvement of the highways only began in the 19th century. Before the time of Macadam it was customary to use broken stones of different sizes to form the roadway, the consequence being that in course of time the smaller stones sank, making the road rough and dangerous. In the seven years ending June 30, 1923, the sum of \$407,704,641 was spent in building 23,297 miles of roads in the United States. Of this amount the United States Government contributed \$174,044,674. \$75,000,000 was appropriated by Congress to the several States as aid in road building in the year ending June 30, 1925.

**Roanoke**, an independent city of Va.; on the Roanoke river and the Norfolk & Western railroad; 55 miles W. of Lynchburg; is in a rich stock-raising, tobacco-growing, and iron-mining section; has manufacturing of machinery and bridge and iron work, canneries, cotton mills, tobacco factories, and locomotive and car shops; and is the seat of Virginia College, Gilmer School for Young Ladies, and Allegheny Institute. Pop. (1930) 69,206.

**Roasting**, the cooking of meat by direct action of fire, either before

the fire or in an oven. Roasting before an open fire is considered preferable to roasting in an oven (which is analogous to baking), on account of the free ventilation to which it exposes the meat during the process.

**Robbery**, the unlawful taking away of money or goods of any value from the person of another, or in his presence, either by violence or by putting him in fear.

**Robbia, Luca Della**, an Italian sculptor; born in Florence in 1399 or 1400. He designed and executed between 1431 and 1440 10 panels of "Angels and Dancing Boys" for the cathedral. Another great work by him was a bronze door, with 10 panels of figures in relief, for the sacristy of the cathedral, made between 1448 and 1467. He sculptured, in marble, in 1457-1458, the tomb of Federighi, Bishop of Fiesole. His name is closely associated with the production of figures in glazed or enamelled terra-cotta, made by a process which, though he did not invent it, he yet perfected greatly. He died in Florence, Feb. 20, 1842. His principal pupil was his nephew Andrea (1435-1525), who worked chiefly at the production of enamelled reliefs, retables, and medallions, these last for the most part productions of the "Madonna and Child." His son Giovanni (1469-1529?) continued the activity of the family in this style of work; his best productions are the frieze, representing the "Seven Works of Mercy," outside a hospital at Pistoja.

**Robbins, Francis Le Baron**, an American clergyman; born in Camillus, N. Y., May 2, 1830; was graduated at Williams College in 1854; held pastorates in Philadelphia for 25 years; founded the Oxford Presbyterian and Beacon Churches, the latter an institutional church among the working class of the Kensington district of Philadelphia.

**Robert, Duke of Normandy**, surnamed the Devil; the younger son of Duke Richard II. by his marriage with Judith, a daughter of Count Godfrey of Brittany. In 1027 he succeeded his elder brother, Richard III. The first years of his government were employed in bringing his rebellious vassals into subjection. In 1034 his fleet

was wrecked off Jersey while on its way to England to support his nephews Alfred and Edward against Canute. He concluded a truce with Canute, by which the two princes were promised half of England. In 1033 he set out to visit the holy places, and subsequently made the pilgrimage to Jerusalem on foot. While returning he died suddenly in Nicæa in Asia Minor (1035). William the Conqueror was his son.

**Robert II.**, King of Scotland; born in Scotland, March 2, 1316; the son of Marjory, daughter of Robert Bruce, and of Walter, steward of Scotland, and was thus the first of the Stewart or Stuart kings. He was recognized by Parliament in 1318 as heir to the crown. On the death of David II. he was crowned at Scone, March 26, 1371. An act of Parliament in 1375 settled the crown on his sons by his first wife Elizabeth Mure of Rowallan, illegitimate by ecclesiastical law. His reign was comparatively a peaceful one, one of the chief events being the battle of Otterburn. Died in Dundonald Castle, May 13, 1390.

**Robert III.**, King of Scotland, eldest son of the preceding; born in 1340 and was originally called John, but changed his name on his coronation in 1390. He trusted the management of affairs almost entirely to his brother, whom he created Duke of Albany. In 1398 Albany was compelled to resign his office by a party who wished to confer it on the king's eldest son, David, Duke of Rothesay. War was renewed with England, and the battle of Homildon Hill, Sept. 14, 1402, resulted in a disastrous defeat of the Scotch. In this year the Duke of Rothesay died in Falkland Castle, where he had been imprisoned. Dread of Albany, who had recovered the regency, induced the king to send his second son, James, to France in 1406; but the vessel which carried him was captured by the English, and Henry IV. long detained him as a prisoner. Soon after this event Robert died in Rothesay, Bute, in 1406.

**Robert, Henry Martyn**, an American military engineer; born in Robertsville, S. C., May 2, 1837; was graduated at the United States Mil-

## Roberts

tary Academy in 1857; served on frontier duty in 1858-1861; was on the staff of General McClellan and on duty as engineer during the Civil War; was promoted captain in 1863; president of the U. S. Board of Engineers for Fortifications in 1895-1901; member of the commission to design a seawall for Galveston, Tex., in 1901-2; consulting engineer to design a causeway and bridge to connect Galveston with the mainland in 1907-8; became Brigadier-General and Chief of Engineers, April 30, 1901, and was retired on May 2, following. His publications include "Robert's Rules of Order" (1876).

**Roberts, Brigham Henry**, an American journalist; born in Warrington, Lancashire, England, March 13, 1857. In the summer of 1866 he emigrated with his parents to Davis Co., Utah; attended the University of Utah. Soon after his graduation he was called by the Mormon Church to its missionary service. After laboring for some years as a missionary he was elected to a high office in the Church. He also engaged in journalism and was for a time editor-in-chief of the Salt Lake "Herald." In 1898 he was elected to Congress by a large majority. His election created widespread agitation throughout the country, and on Jan. 25, 1900, the House of Representatives by an overwhelming majority voted to exclude him as constitutionally ineligible, as a polygamist, to a seat in that body.

**Roberts, Charles George Douglas**, a Canadian poet; born in Douglas, N. B., Jan. 10, 1860. He was an earnest advocate of Canadian nationalism, and such of his poetical compositions as relate to this and other Canadian subjects are excellent.

**Roberts, Ellis Henry**, an American financier; born in Utica, N. Y., Sept. 30, 1827; was graduated at Yale University in 1850. He was a member of Congress in 1871-5, and treasurer of the United States in 1897-1905.

**Roberts, Frederick**, 1st Earl English military officer; born in Cawnpur, India, Sept. 30, 1832. He was brought to England when two years old, educated at Clifton, Eton,

## Roberts

Sandhurst, and Addiscombe, and entered the Bengal Artillery in 1851. His first taste of actual warfare was in the protracted siege of Delhi, during the Indian Mutiny and he took an active part in the subsequent operations down to the relief of Lucknow. He discharged the duties of assistant quartermaster-general in the Abyssinian expedition of 1868, and in the Lushai expedition of 1871-1872. On the outbreak of the Afghan war in 1878, Roberts, now Major-General, was appointed to command the Kurram division of the army. He forced in brilliant fashion the Afghan position on the peak of Peiwar Kotul (8,500 feet above sea-level). After the murder of Sir Louis Cavagnari and the escort of the British mission at Kabul, he was given command of the force sent to avenge them. He defeated the Afghans at Charasia on Oct. 6, took possession of Kabul on the 12th, and assumed the government of the country. On Aug. 9, Sir F. Roberts set out on his memorable march through the heart of Afghanistan to the relief of Kandahar, which he reached three weeks later. He immediately gave battle to Ayub Khan and routed him completely, capturing all his artillery and his camp; was appointed Commander-in-Chief of the Madras army (1881), and held the rank of Commander-in-Chief in India 1885-1893. He was appointed Commander-in-Chief of the forces in Ireland in 1895; and in 1899 took command of the English forces in South Africa; capturing Cronje, relieving Kimberlv, and annexing the two republics. He returned to England and was made Commander-in-Chief to succeed Lord Wolseley. He died Nov. 14, 1914.

**Roberts, (Henry) Chalmers**, an American journalist; born in Austin, Tex., July 31, 1870; was educated at private schools, and studied law at the University of Texas. After leaving college he engaged in journalism; went to the seat of the Turko-Grecian war as a correspondent of the London "Daily News," and in the Spanish-American War was correspondent for the Brooklyn "Eagle," and the London "Daily Mail." He traveled in Egypt for Harpers, and became editor of the English edition of "World's Work" in 1906.

## Robertson

**Robertson, William**, a Scotch historian; born in Borthwick, Scotland, Sept. 19, 1721. Having completed his theological studies at Edinburgh, he obtained a license to preach and in 1743 was presented to the living of Gladmuir, in East Lothian. He soon became distinguished by his eloquence as a preacher; but it was not till 1759 that, by his "History of Scotland," he acquired a place among British classical writers. The distinction he acquired by this work, which reached a 14th edition before his death, appeared in his successive preferments. He became King's chaplain in 1761, principal of the University of Edinburgh in 1762, and Historiographer-Royal of Scotland in 1764. He died near Edinburgh, June 11, 1793.

**Robertson, William H.**, an American lawyer; born in Bedford, N. Y., Oct. 10, 1823. During the Civil War he rendered efficient service in raising and organizing State troops for the Union armies. He was a member of Congress in 1867-1869; was elected to the New York State Senate in 1872; and was appointed collector of the port of New York in 1881. His nomination to this office by President Garfield without consultation with the senators from New York, Roscoe Conkling and Thomas C. Platt, led to their resignation and to the defection of the "Stalwart" wing of the Republican party. He died in Katonah, N. Y., Dec. 6, 1898.

**Robeson, George Maxwell**, an American lawyer; born in Belvidere, N. J., in 1829; was graduated at Princeton University in 1847; studied law; was admitted to the bar in 1850, and in 1867 became attorney-general of New Jersey. He was appointed Secretary of the Navy in 1869; served for a short time as Secretary of War on the resignation of General Belknap in 1867; and was elected to Congress in 1878 and 1880. After retiring from Congress, he practised law in Trenton, N. J., where he died, Sept. 27, 1897.

**Robeson, Henry Bellows**, an American naval officer; born in New Haven, Conn., Aug. 5, 1842; was graduated at the United States Naval Academy in 1860; served through the

## Robespierre

Civil War; participated in the action against the defenses of Charleston, S. C., April 7, 1863, and on July 10 of the same year led the landing party from the "New Ironsides" in an attack on and capture of the Confederate works on Morris Island; took part in both attacks on Fort Fisher; was promoted captain in 1887; rear-admiral in 1899; and was retired in the latter year. He died July 16, 1914.

**Robespierre, Maximilien Marie Isidore**, a French revolutionist; born of a family of Irish origin, in Arras, May 6, 1758. Maximilien early showed unusual promise, and was educated at Arras and at the College Louis-le-Grand at Paris, where Camille Desmoulins was a fellow student. He was admitted avocat in 1781, and next year was named criminal judge by the Bishop of Arras, but resigned his place soon after to avoid passing a sentence of death. He drew up the cahier or list of grievances for the guild of cobblers, and was elected to the States-General in 1789 as one of the deputies for the tiers etat of Artois.

Three days after the death of Mirabeau he called on the Assembly to prevent any deputy from taking office as minister for four years, and in the following month (May, 1791) carried the motion that no member of the present Assembly should be eligible for the next. Next followed Robespierre's appointment as public accuser, the king's flight to Varennes (June 21), Lafayette's last effort to control the sacred right of Insurrection on the Champ-de-Mars (July 17), the abject terror of Robespierre, his sheltering himself in the house of Duplay, a carpenter, his hysterical appeal to the club, the theatrical oath taken by every member to defend his life, and his being crowned with chaplets, along with Petion, and carried home in triumph by the mob at the close of the Constituent Assembly, Sept. 30. After seven weeks of quiet he sold his small patrimony and returned to Paris, to the house of Duplay, where he remained till the last day of his life.

Meantime the Girondist party had been formed in the new Legislative Assembly, its leaders—the loudest, Brissot—eager for war. Robespierre, who ever feared and disliked war, of-



ferred a strenuous opposition in the debates of the Jacobin Club, and sometimes, if seldom, in his endless and windy harangues rose into the region of real eloquence. In April, 1792, he resigned his post of public prosecutor. He was invisible during the crisis of Aug. 10, but joined the Hotel-de-Ville faction, and on Aug. 16 he presented to the Legislative Assembly its petition for a Revolutionary Tribunal and a new Convention. It does not appear, however, that he was in any sense directly responsible for the atrocious September massacres in the prisons, or more than a mere accessory after the fact. For his reward he was elected first deputy for Paris to the National Convention, which opened on Sept. 21.

The bitter attacks on him by the Girondists were renewed only to throw Robespierre into a closer union with Danton and his party, but the final struggle was interrupted for a little by the momentous question of the king's trial. Robespierre opposed vigorously the Girondist idea of a special appeal to the people on the king's death, and his execution (Jan. 21, 1793) opened up the final stage of the struggle, which ended in a complete triumph of the Jacobins on June 2 of the same year. The first Committee of Public Safety—a permanent Cabinet of Revolution—was decreed in April, 1793, but Robespierre was not elected till July 27.

He was now for the first time one of the actual rulers of France, but it is open to question whether for the whole 12 months from this time to the end he was not merely the stalking horse for the more resolute party within the Twelve. He was astute enough, moreover, to play off one force against another—the Convention, the Commune, and the Committee, while he derived his strength from the constant worship of the club.

The next scenes in the dark drama of the Revolution were the dark intrigues and desperate struggles that sent Hebert and his friends to the scaffold on March 24, 1794, and Danton and Robespierre's school fellow, Camille Desmoulin, on April 5, after. The next three months he reigned supreme, but his supremacy prepared the way for his inevitable fall. He nomi-

inated all the members of the government committee, placed his creatures in all places of influence in the commune of Paris, sent his henchman Saint-Just on a mission to the armies on the frontier, assumed supreme control of the Revolutionary Tribunal, and completely revolutionized its method of operation by the atrocious measure introduced by his creature Couthon on the 22d Prairial (June 10), to the effect that neither counsel nor witnesses need be heard if the jury had come otherwise to a conclusion. The fatal significance of this change—a complete abrogation of all laws—is seen in the fact that from this time till the day of Robespierre's death the daily tale of victims of the guillotine averaged almost 30.

Meantime a party in the Convention was formed against Robespierre, and on July 27th he was openly accused of despotism. A decree of arrest was carried against him and he was thrown into Luxembourg prison. He was released by his keeper on the night of the same day and conducted to the Hall of Commune where his supporters were collected. On the following day Barras was sent with an armed force to effect his arrest. Robespierre's followers deserted him and he was guillotined July 27, 1794, together with some 23 of his supporters.

**Robin**, a name given several birds, especially to the Robin redbreast of Europe and to an American species of blackbird, also to the bluebird of America. The typical American robin or migrating thrush is found in summer throughout North America from Alaska to Mexico. They retire from higher latitudes only as their food begins to fail, or till driven S. by inundating snows. During the winter months they are numerous in the Southern States.

**Robin Hood**, the hero of a group of old English ballads, represented as an outlaw and a robber, but of a gallant and generous nature, whose familiar haunts are the forests of Sherwood and Barnsdale, where he fleets the time carelessly in the merry greenwood. He is ever genial and good-natured, religious, respectful to the Virgin and to all women for her sake, with a kind of gracious and noble dignity in his bearing. He lives by the king's deer, though personally most

loyal, and wages ceaseless warfare on all proud pishops, abbots, and knights, taking of their superfluity, and giving liberally to the poor and to all honest men in distress, of whatever degree. He is unrivalled with the bow and quarterstaff; but in as many as eight of the extant ballads comes off the worse in the combat with some stout fellow, whom he thereupon induces to join his company. His chief comrades are Little John, Scathlok (Scarlet), and Much; to these the "Gest" adds Gilbert of the White Hand and Reynold. A stalwart curtail friar, called Friar Tuck in the title, though not in the ballad, fights with Robin Hood, and apparently accepts the invitation to join his company, as he appears later in two broadsides which also mention Maid Marian. Such is the romantic figure of the greatest of English popular heroes—a kind of yeoman counterpart to the knightly Arthur, who is the hero of Tennyson.

There is no evidence worth anything that Robin Hood was ever more than a mere creation of the popular imagination.

**Robins, Benjamin**, an English mathematician, the father of the military art of gunnery; born in Bath, England, in 1707, of a poor Quaker family. He died July 29, 1751.

**Robinson, Charles Seymour**, an American clergyman; born in Bennington, Vt., March 31, 1829. He is famed as a collector of hymns and tunes used in the Presbyterian Church. His publications include "Songs of the Church," "Laudes Domini"; and others. Died 1899.

**Robinson, Edward**, an American philologist; born in Southington, Conn., April 10, 1794; was graduated at Hamilton College in 1816. In 1830 he became Professor of Sacred Literature at Andover, in 1837 Professor of Biblical Literature in the Union Theological Seminary, New York. He then made an extensive survey of Palestine, collecting materials for "Biblical Researches in Palestine and Adjacent Countries" (1841). A second visit in 1852 yielded fruit for its second edition (1856). He died in New York city, Jan. 27, 1863.

**Robinson, Joseph Taylor**, noted political leader, was born in Lonoke,

Ark., Aug. 26, 1872. He was educated at the University of Arkansas after which he studied law. He was admitted to the bar in 1895, became a member of the General Assembly and was elected Governor of Arkansas in 1912. He was known as the "real moral and intellectual leader of the Democrats in the Senate to which he was elected in 1913 to fill the place made vacant by the death of Senator Jeff Davis. He was elected Democratic floor-leader of the Senate in 1923, and his ability in keeping the Senate free from filibusters was conspicuous. He was Democratic nominee for Vice-President in 1928 but was defeated by Curtis of the Republican Party.

**Robinson, Stillman Williams**, an American inventor; born in Reading, Vt., March 6, 1838; was graduated at the University of Michigan in 1863; Professor of Mechanical Engineering at the University of Illinois in 1870-1880, and at the Ohio State University in 1878-1894. He was the inventor of the thermometer-graduating machine; machines for shoe manufacturing, etc., and published "Teeth of Great Wheels and the Robinson Temp-let Odontograph"; "Principles of Mechanism"; etc. He died in 1910.

**Robinson Crusoe**, Alexander Selkirk, who was found in the desert island of Juan Fernandez, where he had been left by Captain Stradling. He remained on the island four years and four months, when he was rescued by Captain Rogers and taken to England.

**Rob Roy** (Gaelic, "Red Robert"), the Scotch Robin Hood; born in 1671; second son of Lieut.-Col. Donald Macgregor of Glengyle. In consequence of losses incurred about 1712, for wife shamefully used. Maddened by these misfortunes, Rob Roy gathered his clansmen and made open war on the duke, sweeping away the whole cattle of a district, and kidnapping his factor with rents to the value of more than \$15,000. Marvellous stories are current round Loch Katrine and Loch Lomond (where a cave near Inversnaid still bears his name) of

his hairbreadth escapes from capture, of his evasions when captured, and of his generosity to the poor, whose wants he supplied at the expense of the rich. They in turn gave him timely warning of the designs of his two arch-foes, the Dukes of Montrose and Athole, and of the red-coats they called to their aid from Dumbarton and Stirling; besides, Rob Roy enjoyed the protection of the Duke of Argyll, having assumed the name Campbell, his mother's. Late in life he is said to have turned Catholic, but in the list of subscribers to the Episcopalian Church history of Bishop Keith occurs the name "Robert Macgregor alias Rob Roy." The history came out in 1734, and on Dec. 28 of that year Rob Roy died in his own house at Balquhider. He left five sons, two of whom died in 1734—James, an outlaw, in Paris; and Robin, the youngest, on the gallows at Edinburgh for abduction.

**Roc, or Rukh**, a fabulous bird of immense size, mentioned in the "Arabian Nights Entertainments."

**Rochambeau, Jean Baptiste Donatien de Vimour, Comte de**, a Marshal of France; born in Vendome, France, July 1, 1725; entered the French army in 1742, distinguished himself in the Seven Years' War, and became Field-Marshal in 1761. In 1780-1782 he commanded the French forces sent to aid the revolted British colonists in America. He became governor of Artois and Picardy, and subsequently of Alsace, was made a Marshal in 1790, and commanded the Army of the North in 1792. During the Reign of Terror he narrowly escaped the guillotine. He died in Thoiry, May 10, 1807.

**Roche, James Jeffrey**, an American author; born in Queen's County, Ireland, May 31, 1847. He went to Boston in 1866 and became in 1890 an editor of the "Pilot," and published: "Songs and Satires"; "Ballads of Blue Water"; etc. D. 1908.

**Rochelle Salt**, the popular name of the tartrate of soda and potash, this salt having been discovered in 1672 by a Rochelle apothecary named Seignette. It occurs, when pure, in colorless transparent prisms, generally eight sided; and in taste it re-

sembles common salt. This salt is a mild and efficient laxative.

**Rochester**, a city and county-seat of Monroe co., N. Y.; on the Genesee river, 229 miles W. of Albany. In the center of the city are the Upper Falls of the Genesee, a perpendicular cataract of 96 feet. Rochester is built on a plateau on both sides of the river, 263 feet above Lake Ontario.

The city is the trade center of a large and rich agricultural region. In the Genesee river there are three falls, 96, 26 and 83 feet respectively, giving abundant waterpower for manufacturing. In 1927 there were 811 manufacturing plants, employing 52,589 wage-earners, paying \$136,507,615 for raw materials and \$73,405,708 in wages, and yielding a combined output valued at \$337,548,402. The most important of these were flour mills; the largest carriage and wagon factory in the United States, and manufactories of steam engines, agricultural machinery, lamps, stoves, glassware, perfumery, india-rubber goods, photographic materials, cigarettes, shoes, etc. In the suburbs is an extensive nursery, including two great plants for the packing and shipment of garden and farm seeds.

Rochester is the seat of the University of Rochester, and the Rochester Theological Seminary. The most remarkable structure in the city and county is the aqueduct which carries the Erie canal across the Genesee river. It is built completely of cut stone, 848 feet long, with a channel 45 feet wide, and is supported by nine arches. Pop. (1920) 295,750; (1930) 328,132.

**Rochester, University of**, a co-educational institution in Rochester, N. Y.; founded in 1850 under the auspices of the Baptist Church.

**Rock**, in geology, any considerable aggregation of mineral matter, whether hard and massive like granite, marble, etc., or friable and unconsolidated like clay, sand, and gravel. In popular language, however, it is any large mass of stony matter, as distinguished from soil, mud, sand, gravel, etc.

**Rock-cod**, the American food fish of the genus *Scorpena*.

**Rock-crystal**. See QUARTZ.

**Rockefeller, John Davison**, an American capitalist; born in Richford, Tioga co., N. Y., July 8, 1839. He engaged in business when he was 19, and soon showed ability in detail and discretion in management. When discoveries of petroleum roused speculative interest in 1860, he owned a refinery in Cleveland, O. He was quick to perceive that his opportunities were at hand. His business developed and enlarged with amazing rapidity. In 1870 he became president of the Standard Oil Company, and accumulated vast wealth, of which, in his retirement from active business, he made great gifts to promote education, science, religion, and systematic charity. On March 2, 1910, when his known benefactions aggregated upward of \$150,000,000, a bill was introduced in the United States Senate to charter a corporation to be known as the Rockefeller Foundation, having its head-quarters in Washington and to be provided by Mr. Rockefeller with a working capital of \$100,000,000, yielding an annual income of \$5,000,000. The bill encountered unexpected opposition, which was not materially relieved when, with Mr. Rockefeller's approval, it was modified to meet criticism. Believing that the effort to secure a Federal charter would fail, the advocates of the measure sought and obtained, May 15, 1913, a State charter, whereupon the bill for a Federal charter was abandoned. The Foundation thus established was provided with funds aggregating \$101,324,576.

**Rockefeller, John Davison, Jr.**, an American capitalist, son of the preceding; born in Cleveland, O., Jan. 29, 1874; early became associated with his father's varied activities; became President of the Rockefeller Foundation; director of the Colorado Fuel and Iron Co.; and member of the General Executive Board, the Rockefeller Institute for Medical Research, the Bureau of Social Hygiene, and the International Health Commission; and during the World War was active in providing relief for the sufferers in the various war zones.

**Rockefeller, William**, an American capitalist, brother of John Davison R.; born in Richford, N. Y., May 31, 1841; engaged first in the produce

commission business, and subsequently in the oil business; and was active in financial and railroad affairs. D. 1922.

**Rockford**, city and capital of Winnebago county, Ill.; on the Rock river and the Illinois Central and other railroads; 87 miles N. W. of Chicago; is essentially a manufacturing city, having large farm implements, paper, flour, cotton, woolen, furniture, machinery, barbed-wire, clothing, hosiery, and sewing-machine plants; and is the seat of a Federal Building, Rockford College, Illinois Art School, and a sanitarium. Pop. (1930) 85,864.

**Rockhill, William Woodville**, an American diplomatist; born in Philadelphia, Pa., in 1854; entered the diplomatic service in 1884 as second secretary of legation at Peking, China; was appointed first assistant secretary of State in 1896. In 1905-1909 he was Minister to China; then became Ambassador to Russia. He died Dec. 8, 1914.

**Rocking Stones**, or **Logans**, large masses of rock so finely poised as to move backward and forward with the slightest impulse. They occur in nearly every country. Some of them appear to be natural, others artificial; the latter seem to have been formed by cutting away a mass of rock round the center-point of its base. The former are chiefly granitic rocks, in which felspar is abundantly present. Various explanations have been given of the uses of these singular objects. They are supposed to have been used in very early times for purposes of divination, the number of vibrations determining the oracle; hence it came to be believed that sanctity was acquired by walking round them.

The famous rocking stone of Tandil in the Argentine Republic, 250 miles S. of Buenos Ayres, weighs over 700 tons, yet is so nicely poised that it rocks in the wind and may be made to crack a walnut.

**Rock Island**, a city in Rock Island co., Ill.; on the Mississippi river. The city derives its name from a beautiful island in the river, which belongs to the United States, and is used by the Federal government for a great central arsenal, a large armory and

foundry, military headquarters, etc. Before and during the Black Hawk War there were block-house forts on this island, and during the Civil War many Confederate prisoners were kept here. Pop. (1930) 37,953.

**Rockne, Knute K.**, American athlete, director of athletics at Notre Dame University, Notre Dame, Ind., born in Voss, Norway, 1889. Earned fame as coach of football teams, his elevens winning 105 games, losing 12 and tying 5 from 1918 to 1930 inclusive. Acknowledged by many to be the greatest football coach in the United States. He developed the forward pass. Died Mar. 31, 1931.

**Rock of Chickamauga**, a name applied to Gen. George H. Thomas, U. S. A., on account of his heroic stubbornness in holding his position at Chickamauga during the Civil War, in September, 1863.

**Rock Pigeon**, a pigeon that builds its nest in hollows or crevices of rocks and cliffs.

**Rock Salt**, common salt, or chloride of sodium, occurring as a mineral and in a solid form. It is a very extensively-diffused mineral, and in some places forms great rock and even mountain masses.

**Rock Scorpion**, (*Buthus* or *Scorpio* afer), a species of scorpion found in Africa, averaging about six inches in length. The bite of this animal, though not absolutely fatal, is yet considered to be dangerous.

**Rocky Mountains, The**, a chain of mountains in the central and W. portions of the North American continent, are a prolongation of the great Mexican Cordillera, extending from the N. frontier of Mexico N. in several ranges, one of which, the E., passing through British North America, reaches the Arctic Ocean in about lat. 70° N.; while the W., passing near the Pacific coast, terminates near Prince William's Sound, in about lat. 60° N. The territory occupied extends from the Californian shores of the Pacific to about lon. 105° W. The whole area properly included by the mountains and their intervening valleys in the country belonging to the United States is estimated at about 980,000 square miles. The mountainous belt of Eastern New Mexico and

Colorado has a general N. and S. direction. On its E. margin stands Pike's Peak, while in Colorado and Nebraska are those portions of the chain known as the Three Parks, and the Medicine Bow Mountains. From Long's Peak, in about lat. 40°, the range trends N. W., connecting with the Wind River Mountains, which latter includes Fremont's Peak, 13,870 feet above sea-level. Beyond that peak to the N. boundary of the United States the range separates the Dakotas and Washington, and the pass known as Lewis and Clarke's, in lat. 47°, is the most N. pass of its system in the Union. In British North America the "Rockies" divide the waters of the Pacific from those which flow into Hudson Bay. The next great range of this mountain system toward the W. is that called the Wahsatch Mountains, lying S. from Great Salt Lake, and toward the N. W. this region is traced along the W. bank of the Colorado toward the Sierra Nevada, which forms the E. boundary of California, and the watershed of the Colorado, and Lewis' Fork of the Columbia river, in lat. 37° and 46° respectively. Nearly the whole area between these points, and for a breadth of about 10 degrees of longitude, stretching E. from the Sierra Nevada, is a vast and partially explored territory, from 4,000 to 5,000 feet above sea-level. In British America this section of the chain interlocks with the main trunk of the Rocky Mountains. The W. portion of the chain commences at the S. extremity of the Lower California peninsula, then passing through California it bifurcates into two ranges, known, respectively, as the Sierra Nevada, at a distance of about 160 miles from the coast, and the Coast Range, skirting the shores of the Pacific from 10 to 50 miles inland, till it reconnects with the Sierra Nevada in Northern California, in which section Mount Shasta attains an altitude of about 14,000 feet above tide water. Throughout all of Oregon and Washington, the distinction is still maintained between the main range, here called the Cascade Mountains, and the Coast Range. The latter traverses the central portion of Vancouver Island for its whole length, and on the mainland in British



Columbia the Sierra Nevada proceeds N. and is crossed by Fraser river. Several depressions are met with, which serve as passes for the routes from Sonora, Sacramento, and Marysville, to the E. by the canyon of Carson river, the range is crossed at an elevation of about 7,250 feet; and by the Truckee Pass the elevation is about 6,000 feet. From these passes the route is N. E. to the main road which crosses the Sierra Nevada in the N. portion of California, and which passes by the Humboldt Mountains to Salt Lake City. To the E. of Salt Lake this route continues across the Wahsatch range to the great South Pass of the Wind River Mountains, immediately S. of Fremont's Peak, and thence down the Sweetwater to the N. fork of the Platte. A more S. route connects Pike's Peak with the Utah basin, and thence turning S. W. crosses the Sierra Nevada near its junction with the Coast Range in Northern California, meeting at this point the route from Santa Fe through New Mexico, and the still more S. one from Texas, which follows the valley of the Gila, and crosses that river and the Colorado at their junction. Mount St. Elias, in Alaska, is one of the highest peaks of this extensively ramified mountain system, though surpassed in height by the neighboring Mount McKinley.

**Rocky Mountain Goat**, a beautiful animal of the antelope family, which inhabits the heights of the Rocky Mountains between the forests and the snow line, from the 44th to the 65th degree of latitude. It is about the size of a goat, but is handsomer and more thickset, and has stronger legs. It is completely covered with long, thick, white hair.

**Rocroi**, a town of N. France, Department of Ardennes, within 2 miles of the Belgian border, and 22 miles N. W. of Charleville; is surrounded by fortifications commanding the plateau between the valley of the Meuse and the headwaters of the Oise. It was fortified as long ago as the 16th century, was besieged by the Imperialists in 1555, invested by the Spaniards in 1643, and captured by them in 1658, was restored to France in 1659, besieged by the Allies in 1815,

and was in the zone of military operations during the World War. Pop. (1926 Est.) 1,400.

**Rodentia**, or **Rodents**, an order of mammiferous quadrupeds occupying in many respects an intermediate place between the purely carnivorous and purely herbivorous mammalia, and so forming the connecting link between them. The order embraces rats and mice, hares, rabbits, guinea pigs, and other well-known animals. They are found in all parts of the world.

**Roderic**, "the last of the Goths," whose tragic death, coincident with the downfall of the Visigothic monarchy in Spain, has inspired poets and romancers, to throw round him a halo of glory. According to the common legend he was the son of a noble who was blinded by King Witiza. A conspiracy having been formed against Witiza, Roderic was elevated to the throne (710). The sons of Witiza bided their time. At length certain nobles were engaged in a plot to dethrone Roderic by Count Julian, the governor of Ceuta (in North Africa). Julian brought with him a Moorish chief named Tarik at the head of 12,000 men. Roderic met the invading army on the banks of the Guadalete, on July 26, 711. The battle raged six days; but the sons of Witiza deserted during the contest, and the rout of the Visigoths was complete. Roderic either died on the field or was drowned in the Guadalete.

**Rodgers, Christopher Raymond Perry**, an American naval officer; born in Brooklyn, N. Y., Nov. 14, 1819. In 1833 he entered the United States navy as a midshipman; was in active service during the Seminole and Mexican Wars; and in 1861 became commander. He commanded, in 1862, an expedition to St. Augustine and up the St. Mary's river. In the attack on the defenses of Charleston, April 7, 1863, he was fleet-captain on the "New Ironsides." He was appointed superintendent of the United States Naval Academy in 1874, 1877, and 1881, and in the same year was promoted rear-admiral. He was retired in 1881; and died in Washington, D. C., Jan. 8, 1892.

**Rodgers, John**, an American naval officer; born in Harford co., Md., July

## Rodgers

11, 1771. He was a captain in the merchant service by 1789, and in 1798 entered the navy as lieutenant, becoming captain the year after. In 1805 he extorted from Tripoli and Tunis treaties abolishing the former tribute and forbidding the slavery of Christian captives. On June 23, 1812, he fired the first shot in the war with Great Britain. He died Aug. 1, 1838.

**Rodgers, John**, an American naval officer; born in Maryland, Aug. 8, 1812; died in Washington, D. C., May 5, 1882. He was the son of Commodore John Rodgers, and entered the navy in 1825. He was in the war against the Seminole Indians, and rendered excellent service during the Civil War. He was rear-admiral in 1871, and in 1877-82 was superintendent of the United States Naval Observatory.

**Rodin, Auguste**, a French sculptor; born in Paris, France, in 1840, studied under Barye, and began to exhibit in the Salon in 1875. He produced great Scriptural and symbolical groups, but is best known by his portrait busts and statues, notably the busts of Victor Hugo and Balzac; though his "Apollo," "Young Girl," "The Kiss," and his panels are equally great. In 1908, two years after the separation of Church and State in France, he secured permission to occupy the famous Hotel Biron as a studio, and submitted a proposition that he be allowed to live there rent free on the proviso that on his death all his own sculptures, sketches, and magnificent collection of works of art should become the property of the Government and the Hotel Biron be known henceforth as the Rodin Museum. It was not until 1914 that the Government accepted his proposition. He died Nov. 17, 1917, in his villa at Meudon, in the outskirts of Paris, on the eve of his election to the Academy of Fine Arts.

**Rodman, Isaac Peace**, an American military officer; born in South Kingston, R. I., Aug. 18, 1822. He entered the Union army; was captain in 1861, and the same year led his company in the battle at Bull Run, July 21. He was soon promoted to colonel and was at the capture of Roanoke Island and at Newbern, N. C. In 1862 he was promoted Brig-

## Roe

dier-General of volunteers. He commanded a division at Fredericksburg. In 1862 he was engaged in the battle of Antietam, where he received a wound from which he died in Sharpsburg, Md., Sept. 30, 1862.

**Rodman, Thomas Jefferson**, an American military officer; born in Salem, Ind., July 30, 1815. He became famous as the inventor of the cannon bearing his name. He died in Rock Island, Ill., June 7, 1871.

**Rodney, Caesar**, an American patriot; born in Dover, Del., Oct. 7, 1728. In 1765 he was a delegate to the Stamp Act Congress in New York. In 1767, when the tea act was proposed in the British Parliament, the Delaware Assembly appointed him to aid in the formulation of an address of remonstrance to the king. In 1775 he was elected for a second time to the Continental Congress, and in May of that year became Brigadier-General of the Delaware militia. He served with distinction during the Revolutionary War, becoming a Major-General. He was elected president of Delaware, in which office he served till 1782, when he was reelected to Congress, but did not take his seat because of illness. He died in Dover, Del., June 29, 1784.

**Roe, Azel Stevens**, an American novelist; born in New York city, Aug. 16, 1798. He left the wine business for the production of literature, attaining considerable success. He died Jan. 1, 1886.

**Roe, Charles Francis**, an American military officer; born in New York city, May 1, 1848; was graduated at the United States Military Academy in 1868, and was assigned to the 1st Cavalry, then on the Pacific slope. He was mustered out in 1870, but was re-appointed. In 1888, he resigned from the army, and returned to New York. In 1898 he served as a Brigadier-General of U. S. volunteers, and the same year was appointed Major-General, N. G. S. N. Y. While in the Regular Army he served on the frontier in Indian campaigns, including the Custer massacre, for 21 years.

**Roe, Edward Payson**, an American novelist; born in Orange co., N. Y., March 7, 1838. He wrote a great

number of very popular novels, which were republished in England and other countries. He died in Cornwall, N. Y., July 19, 1888.

**Roe, Edward Thomas**, an American lawyer; born in Shawneetown, Ill., Nov. 28, 1847; was educated at the Illinois Wesleyan University and the University of Albany; began the practice of law at Bloomington, Ill., in 1870; appointed assistant to the United States attorney for the Southern District of Illinois in 1871, and served in that capacity and as United States district attorney for 16 years.

**Roe, Francis Asbury**, an American naval officer; born in Elmira, N. Y., Oct. 4, 1823; appointed an acting midshipman, Oct. 19, 1841; ordered to the sloop-of-war "John Adams," and served a full cruise; on the breaking out of the Civil War he was ordered to the "Pensacola," was executive officer of that ship at its memorable passage down the Potomac river, through 9 miles of batteries, under constant fire. He took the "Pensacola" to New Orleans, led the starboard (van) column of Farragut's fleet at the battle and passage of Forts Jackson and St. Philip, and 80 miles above the Chalmette Forts. He was detached from the "Pensacola," at New Orleans, Aug. 5, 1862, and ordered to command the gunboat "Katahdin," and the same day fought the battle of Baton Rouge. He was promoted lieutenant-commander, Aug. 6, 1862. Subsequently he was ordered to the Sounds of North Carolina. Roe was promoted captain April 1, 1872, and rear-admiral, Nov. 3, 1884, and was retired Oct. 4, 1885. He died in Washington, D. C., Dec. 28, 1901.

**Roebling, John Augustus**, an American engineer; born in Muhlhausen, Prussia, June 12, 1806; came to the United States in 1831, and settled in Pittsburg, Pa. He was invited to make plans and estimates for building a suspension bridge across the chasm of the Niagara river to unite the New York Central and Great Western (Canada) railroads. He secured the contract and in four years the first locomotive and train crossed the bridge, in March, 1855. His greatest work was the bridge over the East river, connecting New York and

Brooklyn. He died while the construction was in progress, in Brooklyn, July 22, 1869, and the bridge was completed by his son.

**Roebling, Washington Augustus**, an American civil engineer; born in Saxenburg, Pa., May 26, 1837; son of the preceding. He was graduated at the Rensselaer Polytechnic Institute, Troy, N. Y., in 1857; was an engineer officer during the Civil War and attained the rank of colonel of volunteers. In 1865 he resigned from military service to become assistant to his father. In 1869 he was assistant engineer under his father in the construction of the suspension bridge over the East river; and on his father's death became chief engineer, which post he held till the completion of the bridge in 1883. He then became superintendent of the large wire manufactory at Trenton, N. J. Died, 1917.

**Roentgen, William Conrad, Baron**, a German scientist; born in Holland in 1845; was graduated in medicine at the University of Zurich in 1870. On Nov. 8, 1895, he made the discovery of what is known as Roentgen, or X-rays. Died, 1923.

**Roentgen, or Rontgen, Rays.** certain invisible non-refractible rays emanating from the surface of an electrically excited vacuum tube opposite the cathode electrode, having power (1) of permeating objects impervious to light or heat rays, (2) of discharging electrified bodies or surfaces exposed to them, (3) of exciting fluorescence in fluorescent salts, and (4) of affecting sensitized photographic plates in a manner similar to light rays. They were discovered by William Conrad Roentgen, Professor of Physics at the Royal University of Wurzburg, in Germany, toward the close of the year 1895. Not being certain as to the nature of the rays, Professor Roentgen provisionally termed them the X-rays. Besides obtaining radiographs of the bones in the living human hand, Professor Roentgen radiographed a compass card completely inclosed in a metallic box. Subsequent experiments have established the fact that the transparency of a body to the X-rays is proportional to its density. As to the real nature of the X-rays eminent physicists differ, but all

agree that they must be regarded as of a nature essentially different from ordinary light.

The Roentgen rays pass very freely through the various tissues and fluids of the body, but are obstructed by the bones; hence it is possible to take a perfect shadow-picture, or radiograph, as it is now generally called, of the bones of a living person or animal. By far the most important result of the discovery has been the application of the new rays to surgery. Radiographs of bones fractured, splintered, or diseased, have been of much practical use in aiding diagnosis and treatment. Needles, bullets and other foreign objects in various parts of the body have been successfully located, and the invention of the fluoroscope has made it possible to use the Roentgen rays, not only in surgical cases, in searching for fractures, etc., but to undertake anatomical studies and make the diagnosis of internal diseases. The full physiological effect of the X-rays are not yet clearly understood.

A very interesting and practical application of the rays was made at Pittsburg, Pa., early in March, 1897. By means of a very powerful X-ray apparatus, designed by Prof. Reginald A. Fessenden of the Western University of Pittsburg, tests were made that prove that blow holes in heavy armor can be detected by the aid of radiography.

**Rogation Days**, the Monday, Tuesday, and Wednesday before Holy Thursday or Ascension Day, so called from the supplications or litanies which are appointed in the Roman Catholic church to be sung or recited in public procession by the clergy and people.

**Roger I.**, Count of Sicily, the youngest of the 12 sons of Tancred de Hauteville of Normandy; born in that duchy in 1031. When 27 years of age he joined his famous brother Robert Guiscard in South Italy. In 1060 Roger was invited to Sicily to fight against the Saracens; he took Messina and settled a garrison there. Everywhere the Normans were welcomed by the Christians of Sicily as their deliverers from the Moslem yoke, and they won town after town, till in 1071 the Saracen capital, Palermo, was captured. Count Roger spent the rest

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of his life in completing the conquest of Sicily. As early as 1060 Duke Robert had given his brother the half of Calabria, with the title of count. After Robert's death (1085) Roger succeeded to his Italian possessions, and became the head of the Norman power in Southern Europe. Roger died in Mileto, Calabria, in June, 1101.

**Roger II.**, King of Sicily, second son of the preceding; born in 1096. By the Anti-Pope Anacletus in 1130 he was honored with the title of king. In spite of revolts of the barons, and though the German emperor and the Greek emperor were leagued against him, and Innocent II. excommunicated him, he defended himself with success and defeated the Pope's forces at Galluzzo, taking Innocent prisoner. Peace was made, the Pope annulled all excommunication against Roger, and recognized his title of king. He died in 1154.

**Rogers, Henry J.**, an American inventor; born in Baltimore, Md., in 1811. He devised the Rogers code of flag signals adopted by the United States navy in 1846, and invented the first pyrotechnic system of signals ever used in the United States. He was associated with Samuel F. B. Morse in the construction of the first telegraph line in the United States, between Washington and Baltimore, in 1844. Subsequently he invented several important telegraphic instruments, and was one of the incorporators of the Magnetic Telegraph Company, the first in the United States, in 1845. In the Civil War he was an acting master in the navy. He died in Baltimore, Md., Aug. 20, 1879.

**Rogers, Jacob S.**, an American manufacturer; born in Paterson, N. J.; was president of the Rogers Locomotive and Machine Works in that city. He bequeathed his estate to the Metropolitan Museum of Art in New York city. He died July 2, 1901.

**Rogers, John**, an American sculptor; born in Salem, Mass., Oct. 30, 1829; was a machinist in early life; developed a talent in clay modelling; and in 1858 went to Europe to study. He returned to the United States in 1859, and soon became known by the "Rogers Groups," illustrative of American and army life. His first large

work was the "equestrian statue of General Reynolds," now at the city hall in Philadelphia. He died in New Canaan, Conn., July 26, 1904.

**Rogers, Randolph**, an American sculptor; born in Waterloo, N. Y., July 6, 1825; studied art in Europe. He then returned to the United States; for five years had a studio in New York, and established himself in Rome in 1855. He executed the bronze doors of the National Capitol at Washington, D. C. He died Jan. 15, 1892.

**Rogers, Robert**, an American author; born in Dunbarton, N. H., in 1727; commanded during the French and Indian War (1755-1763) the celebrated corps known as "Rogers's Rangers." He left in MS. "A Diary of the Siege of Detroit in the War with Pontiac," first published in 1860. He died in 1784.

**Roger Williams University**, a coeducational institution for colored students in Nashville, Tenn.; founded in 1863 under the auspices of the Baptist Church.

**Rohlf, Friedrich Gerhard**, a German-African traveler; born in Vegesack, Germany, April 14, 1831. In 1863, and again in 1865, he traveled in North Africa, making his way on the latter occasion from Tripoli to Lake Tchad, Bornu, etc., and finally to Lagos on the W. coast. He joined the English Abyssinian expedition in 1867. He traveled across North America in 1875-1876, and in 1878 he undertook a new journey to Africa and penetrated to the Kufra Oasis. In 1880 he visited Abyssinia. He was appointed German general-consul at Zanzibar in 1884, and returned to Germany in 1885. His works include, among others: "Journey through Morocco"; "Land and People of Africa"; "What News from Africa"; etc. He died in Goderburg, Prussia, June 3, 1896.

**Rokitansky, Karl, Baron von**, founder of the school of pathological anatomy in Vienna; born in Koniggratz, Bohemia, Feb. 19, 1804; studied medicine at Prague and Vienna; in 1828 was appointed assistant to the Professor of Pathological Anatomy in the university of the latter city and in 1834 succeeded him. He likewise

held the offices of prosecutor at the city infirmary, legal anatomist to the city, and medical adviser to the ministry of education and public worship. In 1869 he was made president of the Austrian Academy of Sciences. He retired from work in 1875, and died July 23, 1878. He stands preëminent among German medical teachers as the one who established pathological anatomy as the basis of all original scientific inquiry in the domain of medicine.

**Roland**, the name of the most prominent hero in the Charlemagne legend. Unlike most legendary heroes, Roland is a figure in history as well as in poetry and fable, though it cannot be said that the place he occupies as a historical personage is an imposing one. His character was that of a brave and loyal warrior, but simple and unsuspecting in his disposition. According to the Song of Roland, an old French epic, he was killed at the battle of Roncesvalles after a desperate struggle with the Saracens who had attacked Charlemagne's rear guard. Several epics are based upon his exploits.

**Roland, Manon Jeanne Philippon, Madame**, wife of Jean Marie, and herself the spirit of the Girondin party; the daughter of a Paris engraver; born in that city, March 17, 1754. She became the wife of Roland in 1779, and as her love for him was founded on his antique virtues and his philosophic spirit, she has been called "The Heloise of the 18th century." She became the sharer in all his studies, aided him in editing his works, and during his two ministries acted as his secretary and entered into all the intrigues of his party without debasing herself by their meanness. After the flight of her husband, Madame Roland was arrested by order of the Paris Commune under the dictation of Marat and Robespierre, and consigned to the Abbaye prison, from which, on Oct. 31, she was removed to a more wretched abode in the Conciergerie. She was executed Nov. 8, 1793.

**Roland de la Platiere, Jean Marie**, a French statesman; born in Villefranche, France, Feb. 18, 1734; was inspector-general of manufactures and commerce in that city when the



French Revolution commenced, and having embraced popular principles became, in 1790, member of the Lyons municipality. The practical philosophy, commercial knowledge, and strict simplicity of Roland, recommended him to men of all parties, and when the patriot ministry was formed in March, 1792, he was made minister of the interior. He kept his position till June 13, when the royal veto on the proposal to form a patriot camp around Paris, and on the decree against the priests, provoked his celebrated letter to the king, written, however, by Madame Roland, and, as a consequence, his almost instant dismissal. The struggle between the Girondists and the municipality under the guidance of Robespierre filled up the period till May 31; the former party were then vanquished, and Roland was among the number who saved their lives by flight. He found an asylum with his friends at Rouen, but deliberately killed himself with his cane sword on hearing of the execution of his wife, Nov. 15, 1793.

**Rolfe, William James**, an American editor; born in Newburyport, Mass., Dec. 10, 1827. He was a distinguished Shakespearean scholar, and published many editions of Shakespeare, annotated. Died 1910.

**Roller** (Coraciidae), a family of Picarian birds characteristic of the Ethiopian and Oriental regions, though the common roller is extensively distributed in the Palearctic region and a few species enter the Australian region.

**Roller Boat**, a boat propelled by wheels which roll over and on the water instead of cutting through it. Designed by Ernest Bazin, a Frenchman, in 1896; its slowness made it a failure.

**Roller Skate**. The earliest roller skate was patented by a Frenchman in 1819. About 1864 the mania for rolling skating first appeared in England; but in 1866 the "rinking" fever broke out in Australia, and spread thence to England and the United States. Since that time the craze has appeared at intervals only to again die out. The most recent of these arose in 1884-1885 in the United States, but soon shared the fate of its predecessors. The most recent

form has only two wheels, set one behind the other, and resembling the ice skate in its form and action.

**Rollin, Ambrose Lucien**, a West-Indian historian; born in Trois Rivières, Guadeloupe, in 1692. He devoted his leisure to researches upon the Caribs and other Indian tribes, and published several works which are still considered authorities upon the subjects he covered. He died at Pointe à Pitre in 1749.

**Rollin, Charles**, a French historian; born in Paris, Jan. 30, 1661. His best-known work is the "Ancient History" (1730-1738), often reprinted in France, England, and the United States. He died in Paris, Sept. 14, 1741.

**Rolling Mill**, a combination of machinery used in the manufacture of malleable iron and other metals of the same nature. By it the iron which is heated and balled in the puddling furnace is made into bars or sheets.

**Rollins, Alice Marland (Wellington)**, an American verse writer; born in Boston, June 12, 1847. She died in Boston, Dec. 5, 1897.

**Roman Architecture**. It can hardly be said that the early Romans had any style of architecture of their own, since they borrowed their ideas of building first from the Etruscans and afterward from the Greeks. In the time of Romulus their dwellings were of the rudest description, being chiefly composed of straw; and at a later period their temples were only small square buildings, scarcely large enough to contain the statues of their deities. The first king who constructed works of a large class requiring architectural skill was Ancus Martius. His first attempt was the building of the city and port of Ostia, at the mouth of the Tiber. During the first two Punic wars many temples were erected; but they do not appear to have been of great magnificence. Altogether, very little taste had been shown in the Roman buildings till their conquests extended and they became intimate with the more costly buildings of their enemies. Metellus Macedonicus, the contemporary of Mummus, the victor of Corinth, was the first who built a temple of marble at Rome; but from that time most of the larger

## Roman Candle

edifices were built of that material. Grecian art and architecture were also introduced about the same period. Under Julius Caesar, many new and magnificent buildings were erected; and during the Golden Age, under Augustus, most of the finest edifices were built; architects flocked from all quarters, and especially from Greece, to beautify the city. It was said of Augustus "that he found Rome built of brick and left it of marble." After this period, however, architecture declined till Constantine transferred the seat of government to Byzantium, when a new style was introduced.

A characteristic feature in Roman architecture, and one that entered largely in the system, is the employment of order above order in the same building. While this arrangement is faulty, for it is incompatible with the requirements of the highest standard of taste, yet still, at the same time, it proves the Roman aptness of invention and versatility of design. The style of architecture called the Roman order was invented by the Romans from the Ionic and Corinthian orders; and hence it is sometimes called the Composite order.

**Roman Candle**, a species of fireworks consisting of a tube partially filled with alternating perforated stars and small charges of gunpowder. Fire communicated to the upper end ignites the charges successively, which throw out the stars till all are discharged.

**Roman Catholic Church**, the name of that community of Christians who profess the same faith, partake of the same sacraments and sacrifice, and are united under one head, the Pope or Bishop of Rome, called successor of St. Peter, and under the bishops subject to him. Its essential parts are the Pope, bishops, pastors — so far as they are priests — and laity. The distinctive characteristic of the Roman Church is the supremacy of the papacy. After the Council of Trent Pope Pius IV. added to the formal profession of faith the articles on transubstantiation, invocation of saints, and others which chiefly distinguish the Roman from other Christian communities.

The total number of Roman Catholics throughout the world is estimated at 268,000,000.

## Romance Languages

According to the latest survey made by this church (July, 1928) there are 19,483,296 Roman Catholics in the United States. They are governed 12 archbishops, 99 bishops, 24,900 priests. There are 6,995 parish schools with an attendance of 2,167,241 pupils, and 141 ecclesiastical seminaries with 13,988 students. There are 613 hospitals maintained by the Church.

**Romance.** Romance has long since lost its original signification in every country except Spain, where it is still occasionally used in speaking of the vernacular, as it was in the Middle Ages when Latin was the language of the lettered classes and of documents and writings of all kinds. But even there its commoner application is, as elsewhere, not to a language, but to a form of composition. In English it has been almost invariably applied to a certain sort of prose fiction, and, in a secondary sense, to the style and tone prevailing therein. By "the romances," using the term specifically, we generally mean the prose fictions which, as reading became a more common accomplishment, took the place of the lays and "chansons de geste" of the minstrels and trouveres, and were in their turn replaced by the novel. Of these the most important in every way are the so-called romances of chivalry, which may be considered the legitimate descendants of the "chansons de geste." The chivalry romances divide naturally into three families or groups; the British (which, perhaps, would be more scientifically described as the Armorican or the Anglo-Norman), the French, and the Spanish; the first having for its center the legend of Arthur and the Round Table; the second formed round the legend of Charlemagne and the Twelve Peers; and the third consisting mainly of Amadis of Gaul followed by a long series of sequels and imitations of one kind or another.

**Romance Languages**, a general name for those modern languages that are the immediate descendants of the language of ancient Rome. They include the Italian, French, Provençal, Spanish, Portuguese, Rumanian, and Romansch.

**Romanesque Architecture**, a general term applied to the styles of architecture which prevailed from the 5th to the 12th centuries. Of these there are two divisions: (1) The debased Roman, prevalent from the 5th to the 11th centuries, and including the Byzantine modifications of the Romans, and (2) the late or Gothic Romanesque of the 11th and 12th centuries, comprising the later Byzantine, the Lombard, and the Rhenish, Saxon, and Norman styles. The former is a pretty close imitation of the Roman, with modifications in the application and distribution of the peculiar features; the latter is Gothic in spirit, having a predominance of vertical lines, and various other new features.

**Roman Roads**, certain ancient roads in Great Britain which the Romans left behind them. They were uniformly raised above the surface of the neighboring land and ran in a straight line from station to station.

**Romans, Epistle to the**, one of the books of the New Testament, written by the Apostle Paul, and addressed to the Christian Church at Rome. It is the 5th in order of time, though placed first among the epistles, either from the predominance of Rome, or because it is the longest and most comprehensive of the apostle's epistles. It is generally agreed to have been written about A. D. 58, after he had passed through a lengthened period of experience. That it is the genuine and authentic production of the apostle has rarely been called in question, and is supported by the strongest evidence.

**Roman Walls**, certain walls or ramparts in Great Britain constructed by the Romans. The most celebrated of these is the wall built by Hadrian (A. D. 120) between the Tyne and the Solway. It was further strengthened by Severus, and hence is often called the wall of Severus. In 139 Lollius Urbicus built a second wall or N. rampart between the Forth and the Clyde, which occupied the same line as the chain of forts built by Agricola (A. D. 80-85). It is known as the wall of Antoninus. These walls formed the N. boundaries of the Roman dominions in Great Britain, and

were built to prevent the incursions of the Picts and Scots.

**Rome**, the most powerful State of antiquity; founded about 753 B. C. by a settlement from Alba Longa led by Romulus. At first the new city was ruled by kings, but in 509 B. C. the people established a republic which lasted for 500 years. Its most important feature was the struggle between the plebeians and the patricians, settled finally in 286 B. C., by admission of plebeians to a share in the government. Meanwhile Rome had been gradually spreading out, and by 275 B. C. was mistress of all Italy.

The next 30 years were crucial in the history of Rome. Her aggressive policy in the Mediterranean brought her face to face with Carthage, and under their military genius Hannibal, the Carthaginians threatened the very existence of Rome itself. Carthage was finally burned to the ground in 146 B. C. By 133 B. C. Rome had conquered Macedonia and Asia Minor.

At this point begins the decline of Rome as a republic. A series of bitter civil wars centralized the governing power in the hands of a few leaders and in 48 B. C. Julius Caesar was created Imperator. With Caesar the republic and Rome's greatest period came to an end. Under the republic the power of Rome had been extended from Arabia to Great Britain, and from Spain to Armenia.

In 27 B. C. Octavian became first emperor of Rome under the title of Augustus. His immediate successors added slightly to Roman territory, but under Marcus Aurelius the decline began. From A. D. 180 to 284 Rome grew gradually weaker. In 284 Diocletian reorganized the empire, and for nearly 200 years these reforms delayed the inevitable disruption; but in 395 the empire separated into two divisions; the Eastern, or Byzantine, and the Western; and in 476 the Western, or Roman empire, was finally overthrown, and Odoacer, a German, became King of Italy.

**Rome**, the capital of Italy, as formerly of the Roman empire, republic, and kingdom, and long the religious center of Western Christendom, is one of the most ancient and interesting cities of the world. It

stands on both sides of the Tiber, about 15 miles from the sea. The city is tolerably healthy during most of the year, but in late summer and early autumn malaria prevails to some extent. It has been greatly improved in cleanliness and healthfulness since it became the capital of modern Italy.

The streets of ancient Rome were crooked and narrow, till after the fire that took place in Nero's reign, when the new streets were made both wide and straight. In the reign of Augustus the population is believed to have amounted to about 1,300,000, and in that of Trajan was not far short of 2,000,000.

Ancient Rome was adorned with a vast number of splendid buildings, including temples, palaces, public halls, theaters, amphitheaters, baths, porticoes, monuments, etc., of many of which we can now form only a very imperfect idea. The oldest and most sacred temple was that of Jupiter Capitolinus, on the Capitoline Hill. The Pantheon, a temple of various gods (now Church of S. Maria Rotonda), is still in excellent preservation. It is a great circular building with a dome roof of stone 140 feet wide and 140 feet high, a marvel of construction, being 2 feet wider than the great dome of St. Peter's. The interior is lighted by a single aperture in the center of the dome. Other temples were the Temple of Apollo, which Augustus built of white marble, on the Palatine, containing a splendid library, which served as a place of resort to the poets; the Temple of Minerva, which Pompey built in the Campus Martius, and which Augustus covered with bronze; the Temple of Peace, once the richest and most beautiful temple in Rome, built by Vespasian, in the Via Sacra, which contained the treasures of the temple of Jerusalem, a splendid library, and other curiosities, but was burned during the reign of Commodus; the temple of the Sun, which Aurelian erected to the E. of the Quirinal; and the magnificent temple of Venus, which Cæsar caused to be built to her as the origin of his family. The principal palace of ancient Rome was the Palatium or imperial palace, on the Palatine Hill, a private dwelling house enlarged and adopted as the imperial residence by

Augustus. Succeeding emperors extended and beautified it.

Among the theaters, those of Pompey, Cornelius Balbus, and Marcellus were the most celebrated. That of Pompey, in the Campus Martius, was capable of containing 40,000 persons. The most magnificent of the amphitheaters was that of Titus, completed A. D. 80, now known as the Coliseum or Colosseum. Though only one-third of the gigantic structure remains, the ruins are still stupendous. The principal of the circuses was the Circus Maximus, between the Palatine and Aventine, which was capable of containing 260,000 spectators. With slight exception its walls have entirely disappeared, but its form is still distinctly traceable.

The public baths or thermæ in Rome were also very numerous. The largest were the Thermæ of Titus, part of the substructure of which may still be seen on the Esquiline Hill; the Thermæ of Caracalla, even larger, extensive remains of which still exist in the S. E. of the city; and the Thermæ of Diocletian, the largest and most magnificent of all, part of which is converted into a church. Of the triumphal arches the most celebrated are those of Titus (A. D. 81), Severus (A. D. 203), and that of Constantine (A. D. 311), all in or near the Forum and all well preserved structures.

It was not till the 17th century that the modern city was extended to its present limits on the right bank, by a wall built under the pontificates of Urban VIII. (1623-1644) and Innocent X. (1644-1655), and inclosing both the Janiculum and the Vatican hills. The boundary wall on the left or E. bank of the river follows the same line as that traced by Aurelian in the 3d century, and must in many parts be identical with the original structure. The walls on both banks are built of brick, with occasional portions of stone work, and on the outside are about 55 feet high. The greater part dates from A. D. 271 to 276. The city is entered by 12 gates (several of those of earlier date being now walled up) and several railway accesses. Since Rome became the capital of united Italy great changes have taken place in the appearance of the city, many miles of new streets being

## Rome

built, and much done in the way of paving, drainage, and other improvements. It has thus lost much of its ancient picturesque appearance, and is rapidly acquiring the look of a great modern city with wide, straight streets of uniform-looking tenements having little distinctive character. It is still, however, replete with ever varying and pleasing prospects.

The most remarkable of the churches is the Cathedral of St. Peter, the largest and most imposing to be found anywhere. Another remarkable church is that of San Giovanni in Laterano, on an isolated spot near the S. wall of the city. From the central balcony the Pope pronounces his benediction on Ascension day; and the church is the scene of the councils which bear its name.

Among other churches are Sta. Maria della Pace, celebrated for its paintings, particularly the four Sibyls, considered among the most perfect works of Raphael; Sta. Maria del Popolo, interesting from the number of its fine sculptures and paintings (Jonah by Raphael, ceiling frescoes by Pinturicchio, and mosaics from Raphael's cartoons by Aloisio della Pace).

The Vatican, adjoining St. Peter's, comprises the old and new palaces of the Popes (the latter now the ordinary papal residence), the Sistine chapel, the Loggia and Stanze, containing some of the most important works of Raphael, the picture gallery, the museums (Pio-Clementino, Chiaramonti, Etruscan and Egyptian), and the library (220,000 volumes and over 25,000 MSS.). The palace of the Quirinal was formerly a favorite summer residence of the Popes, but is now occupied by the King of Italy. The Palazzo della Cancelleria is the only palace on the left bank of the river still occupied by the ecclesiastical authorities. The building was designed by Bramante, and is one of the finest in Rome.

Among educational institutions the first place is claimed by the university, founded in 1303. The most flourishing period of the university was the time of Leo X. (1513-1522), under whom the building still occupied by it was begun. It is now attended by over 3,000 students and auditors. Pop. (1926 Est.) 720,441.

## Romney

**Rome**, city and capital of Floyd county, Ga.; on the Coosa river and the Southern and other railroads; 75 miles N. W. of Atlanta; is one of the most important manufacturing cities in the State; the seat of Shorter College for Women (Bapt.) and Battey and Emergency hospitals. Pop. (1930) 21,843.

**Rome**, a city in Oneida county, N. Y.; on the Mohawk river, the Erie and Black River canals, and several railroads; 14 miles N. W. of Utica; is in a noted dairying section; has large locomotive works, iron, brass, and copper mills, and manufactories of plows, cheese presses, knit goods, canned goods, and compressed air motors; and contains the Central New York Institution for Deaf Mutes, State Custodial Asylum, and Jervis Library. Pop. (1930) 32,338.

**Romero, Don Matias**, a Mexican diplomatist; born in Oaxaca, Mexico, Feb. 24, 1837; was graduated at the Academy of Theoretical and Practical Law, Mexico City, in 1855. He was admitted to the bar in 1857, and was sent to Washington, D. C., as secretary of the Mexican legation in 1859. In 1860 he was made charge d'affaires, but in 1863 returned to Mexico to take part in the war against the French. In 1882 he became a second time minister to the United States and remained so till death, Feb. 30, 1898.

**Romilly-sur-Seine**, a town of France, Department of Aube, on the Seine river, 22 miles N. W. of Troyes, 65 miles S. E. of Paris, on the direct line from Paris to Belfort. It is principally engaged in manufacturing, having large iron works, rope works, railway shops, and cap, stocking, and needle factories. Pop. about 14,300.

**Romney, George**, an English painter; born in Rickside, Lancashire, Dec. 15, 1734. He steadily rose in popularity, and was finally recognized as inferior only to Reynolds and Gainsborough as a portrait-painter; some critics even placed him higher than either. His residence in London was interrupted by occasional visits to the Continent for purposes of study, and his most prosperous period dates from 1775, after his return from a visit of 18 months to Rome. Many distinguished Englishmen and many ladies of rank sat to him for their por-



traits. He did not neglect historical or imaginative compositions, and he contributed several pictures to Boydell's famous Shakespeare gallery, founded in 1786. Fine examples of his work command high prices. He died in Kendal, Nov. 15, 1802.

**Romulus**, mythical founder and first King of Rome. According to the legends, he was the son of the vestal Rhea Sylvia by the god Mars, Sylvia being a daughter of Numitor, rightful heir of the King of Alba, but deprived by his brother. Exposed with his twin brother Remus, the babes were suckled by a she wolf, and afterward brought up by a shepherd. Their parentage was discovered, and they determined to found a city on the banks of the Tiber, the scene of their exposure. The right to choose the site was acquired by Romulus; and Remus not acquiescing, in his disappointment, was slain. Inhabitants for the new city were found by establishing a refuge for murderers and fugitive slaves on the Capitoline hills, and by carrying off the Sabine maidens at a feast to which they were invited. This led to war with the Sabines, which ended, through the intervention of the Sabine women, in a union of Romans and Sabines, under their two kings, Romulus and Titus Tatius. The latter was soon slain, and Romulus reigned alone. He was regarded as the author of the fundamental division of the people into tribes, curiæ, and gentes, and of the institution of the senate and the comitia curiata. The date commonly assigned for the foundation of Rome is 753 B. C.

**Rondeau**, or **Rondo**, a kind of poetry which returns, as it were, to the same point, or in which part is repeated, thus containing a refrain. In music, a light form of composition, in which the subject or theme returns frequently; it usually forms the last movement of a symphony or sonata.

**Ronsard, Pierre de**, a French poet; born in Vendomois, France, Sept. 11, 1524. After a short diplomatic career, he devoted himself to literary studies and became the chief of the band of seven poets afterward known as the "Pléiade." Ronsard's popularity and prosperity during his life were very great. Henry II., Francis II., and Charles IX. esteemed

him, and the last signally honored the poet. He died Dec. 27, 1585.

**Rontgen**. See ROENTGEN.

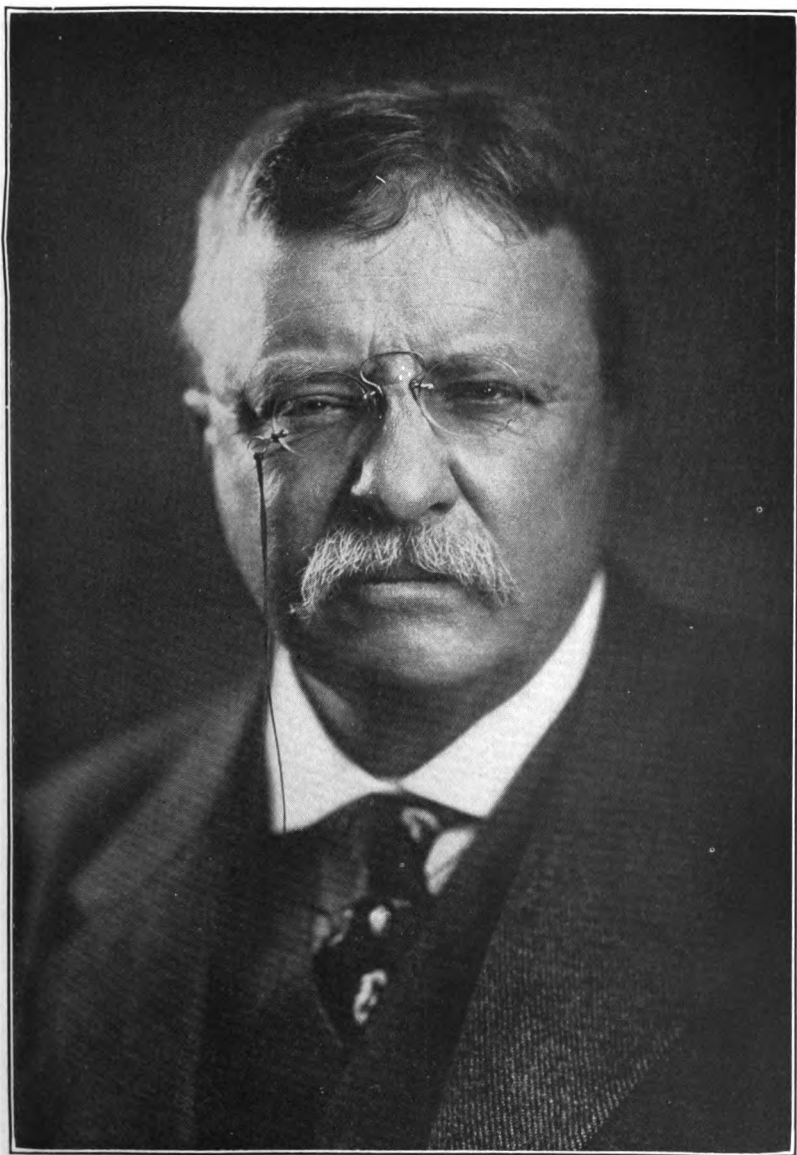
**Rood**, a cross or crucifix; specifically, a representation of the crucified Saviour, or, more generally, of the Trinity, placed in Catholic churches over the altar screen, hence termed the rood screen.

**Roof**, the external covering on the top of a building; sometimes of stone, but usually of wood overlaid with slates, tiles, lead, etc. Since the introduction of iron in the construction of roofs, spaces of almost any width can be roofed over. Also that which resembles, or corresponds to, the cover of a building; as, the roof of the mouth, the roof of the firmament, etc.

**Rook**, a European species of crow resembling in size and color the carrion crow, but differing in having the base of the bill whitish and scurfy, and bare of feathers. The rook is gregarious at all seasons, resorting constantly to the same trees every spring to breed, when the nests may be seen crowded one over another upon the upper branches.

**Rooke, Sir George**, an English admiral; born near Canterbury, England, in 1650. He entered the navy at an early age and rose to be vice-admiral in 1692. For his gallantry in a night attack on the French fleet off Cape La Hogue he was knighted in 1692. His further services include the destruction of the French and Spanish fleets in Vigo Bay (1702), and a share in the capture of Gibraltar in July, 1704. In the following August he fought a French fleet of much superior force, under the Comte de Toulouse, off Malaga. The result was undecisive, and this fact was used against Rooke by his political opponents. Sir George quitted the service in disgust in 1705. He served in several Parliaments as member for Portsmouth. He died near Canterbury, Jan. 24, 1709.

**Rookwood Pottery, The**, a ceramic establishment founded in Cincinnati in 1880 by Mrs. Maria Longworth Storer, whose father, Joseph Longworth, was the founder of the art school and a chief patron of the art museum of the same city. The distinguishing mark of Rookwood



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**THEODORE ROOSEVELT (1858-1919)**  
Twenty-sixth President of the United States



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**RARE BIRDS OF BRILLIANT PLUMAGE**



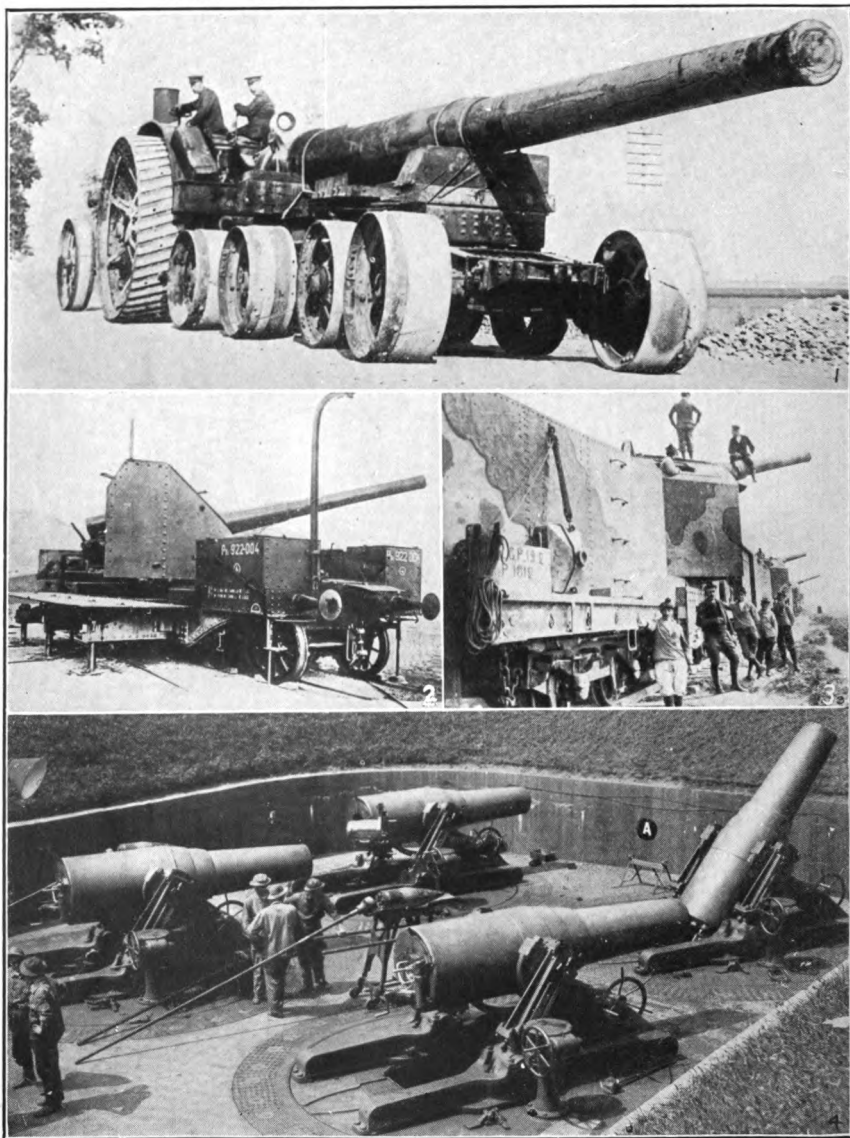


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# BIRDS

1. Blue-and-Red Macaw; 2. Incomparable Bird of Paradise; 3. Golden Bird of Paradise; 4. Resplendent Trogon; 5. King Bird of Paradise; 6. Fire Weaver; 7. Paradise Flycatcher; 8. Broad-Shafted Whidah-Bird; 9. Marsh Hawk; 10. Bald Eagle; 11. Barred Owl; 12. Golden Pheasant

## BIG GUNS IN MODERN WARFARE



- 1—One of Great Britain's mammoth guns.
- 2—Giant French gun mounted on an armored car.
- 3—Camouflaged train of huge Italian guns.
- 4—U. S. mortar battery.

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faience in all its wares is the decorative quality of the color grounds, carefully studied with reference to harmony.

**Roon, Albrecht Theodor von**, a Prussian war minister; born in Pleushagen, Prussia, April 30, 1803. He entered the army at the age of 18, and speedily developed a high talent for the theoretical and educational branches of his profession. In 1866 he was made general of infantry, and was present with the army in Bohemia during the Seven Weeks' war against Austria. On the conclusion of the war Von Roon was made a count, and on Jan. 1, 1873, he became a field-marshal and minister-president of Prussia. In November of the same year, however, he laid down his public offices and retired to his estate in Silesia, where he chiefly resided till his death. D. Berlin, Feb. 13, 1879.

**Roosevelt, Robert Barnwell**, an American lawyer; born in New York city, Aug. 7, 1829. He was an enthusiastic sportsman, and published: "The Game Birds of the North," and "Progressive Petticoats," a humorous satire on female physicians. He died June 14, 1906.

**Roosevelt, Theodore**, an American statesman and 26th President of the United States; born in New York city, Oct. 27, 1858; was graduated at Harvard University in 1880 and began the study of law. The next year he was elected to the Assembly from the 21st District of New York, serving in the Legislatures of 1883, 1884, and 1885. While chairman of the Committee on Cities, he introduced reform legislation which has proved immensely beneficial to the people of New York. One of his measures was the act taking from the Board of Aldermen power to confirm or reject the appointments of the mayor. He was chairman of the noted Legislative Investigating Committee which bore his name and which revealed many of the abuses existing in the city government in the early eighties.

In 1886 Mr. Roosevelt was the Republican candidate for mayor against Abram S. Hewitt, United Democracy, and Henry George, United Labor. Mr. Hewitt was elected by about 22,000 plurality. Mr. Roosevelt was appointed a Republican member of the

United States Civil Service Commission by President Cleveland in his first administration. His ability and rugged honesty in the administration of the affairs of that office greatly helped to strengthen his hold on popular regard. He continued in that office till May 1, 1895, when he resigned to accept the office of police commissioner from Mayor Strong. His record as president of the board was of the highest character. He found the administration of affairs in a demoralized condition, but the same energetic methods that had characterized all his work, the same uncompromising honesty that is the most prominent note in his character, when applied to police affairs, soon brought the administration of the department to a high degree of efficiency.

From his New York office he was called by President McKinley, April 6, 1897, to be Assistant Secretary of the Navy. There again his energy and quick mastery of detail contributed much to the successful administration of the department and the preparation of the navy for the most brilliant feats in naval warfare in the history of the world.

When war was declared against Spain Mr. Roosevelt refused to remain in the quiet government office. For years he had spent his summers on a Dakota ranch, and learned to know cowboys as strong, sincere men, on whom the nation could rely. From these the famous cavalry troop known as the "Rough Riders" was largely recruited. Four years' membership in the 8th Regiment of the New York State National Guard, to which he belonged and in which he was for a time a captain, furnished at least a basis for his brilliant military career. But more than all else that induced him to go to the front were his devotion to the cause for which the war was fought and his love for an active life. These same reasons drew to him scores of young men of prominent families from all parts of the country, who joined the Western cavalymen. The regiment thus formed was known as Roosevelt's Rough Riders, though it was commanded by Colonel Wood of the regular army, Roosevelt being second in command, with the rank, till promoted, of lieutenant-colonel.

For bravery in the battle of Las Guasimas Roosevelt was promoted colonel and in the three days of fighting before Santiago, and especially in the magnificent charge up San Juan Hill, he acted with conspicuous gallantry. On the return of the Rough Riders from Cuba, Roosevelt was the popular idol of the country; and despite considerable opposition from professional politicians was nominated for governor of New York on the Republican ticket, Sept. 27, 1898. He was elected by a plurality of 18,000, Nov. 4. In the Republican National Convention held in Philadelphia in the summer of 1900 Roosevelt was enthusiastically nominated for Vice-President on the Republican ticket headed by William McKinley. He was elected Nov. 4, and was formally installed March 4, 1901. On the death of President McKinley in Buffalo, N. Y., Sept. 14, 1901, Roosevelt took the oath of office as his successor, and became the 26th President of the United States. In 1904 he was elected President by a popular plurality of 2,545,515 votes and an electoral majority of 196 over Judge Alton B. Parker, the Democratic candidate. In this term, he gave the country a vigorous administration and developed a characteristic line of policies having in view the betterment of the national life. Immediately after the close of his term he withdrew from public life, joined the editorial staff of "The Outlook," and spent fifteen months in traveling and hunting in Africa and in visiting the principal capitals of Europe. While abroad he acted as the special ambassador of the United States at the funeral of King Edward VII.

Early in 1912 he announced that he would not be a candidate for the Presidential nomination in that year, but later developed much opposition to the Taft administration and sought the nomination. When the Republican National Convention met in Chicago in June he declared that he had been defrauded out of many votes by the decisions of the National Committee on contests by various sets of delegates, and instructed his supporters to take no part in the proceedings. Of the total ballots for the nomination on

June 22, President Taft received 561 and Roosevelt 107, by delegates who disregarded his request. The Roosevelt following then organized the Progressive party, and, in convention in Chicago on Aug. 7 following, nominated their leader for President with Gov. Hiram W. Johnson, of California, for Vice-President. After his nomination he made a vigorous campaign throughout the country until Oct. 14, when he was shot in the breast by an insane man in Milwaukee. He was able, however, to make a speech in New York on Oct. 30 following. In the election, he was defeated by Gov. Woodrow Wilson.

On the entrance of the United States into the World War he proposed to the Government to raise an entire army division for service in Europe, but, though he urged the proposition with all his accustomed vigor, it did not meet the approbation of the War Department. **Died, 1919.**

**Roosevelt, Theodore, Jr., born** 1887, son of T. Roosevelt. Assistant Secretary of the Navy, 1921. Republican candidate for governor of State of New York, 1924, defeated by Gov. Smith. **Elected, 1928.**

**Root, Elihu,** an American statesman; born in Clinton, N. Y., Feb. 15, 1845; was graduated at Hamilton College in 1864, and after teaching for a while entered the New York University Law School and was graduated in 1867. On Aug. 1, 1899, he was appointed Secretary of War by President McKinley, and on March 5, 1901, was reappointed. After the Spanish-American War, Secretary Root represented the United States government in all official communications with Cuba, Porto Rico, and the Philippine Islands. He was Secretary of War in 1899-1904; Secretary of State in 1905-1909; elected United States Senator for the term of 1909-1915; chief counsel for the United States before the Permanent Arbitration Court in 1910. He strenuously supported the Government after the declaration of war, and in 1917, after the overthrow of the autocratic government of Russia, he headed a special mission to that country to pledge the hearty coöperation of the United States in the movement to establish for the Russian people a sound democracy.

**Ropes, John Codman**, an American historian; born in St. Petersburg, Russia, April 28, 1836; was graduated at Harvard in 1857; studied at the Harvard law school, and was admitted to the bar in 1861. Largely through his influence the United States government began the collection and preservation of information relating to the Civil War, and he organized the Military Historical Society of Massachusetts. Besides contributions to this society and to periodicals he wrote: "The Army under Pope" (1881); "The First Napoleon" (1885); "The Campaign of Waterloo"; "Atlas of Waterloo"; and "The story of the Civil War." Died in Boston, Mass., Oct. 28, 1899.

**Roquette, Adrien Emmanuel**, an American poet; born in New Orleans, La., Feb. 13, 1813. He wrote with equal ease and grace in English and French. He died in New Orleans, July 15, 1887.

**Roraima**, a celebrated mountain in South America, where the boundaries of British Guiana, Venezuela, and Brazil meet, 7,800 feet high, flat-topped, with steep, rocky sides, rendering the summit almost inaccessible. More than one explorer has succeeded, however, in reaching the top.

**Rorqual**, the name given to certain whales, closely allied to the common or whalebone whales, but distinguished by having a dorsal fin, with the throat and under parts wrinkled with deep longitudinal folds, which are supposed to be susceptible of great dilatations, the use of which is as yet unknown. Two or three species are known, but they are rather avoided on account of their ferocity, the shortness and coarseness of their baleen or whalebone, and the small quantity of oil they produce. The N. rorqual attains a great size, being found from 80 to over 100 feet in length, and is thus the largest living animal known. The rorqual feeds on cod, herring, pilchards, and other fish, in pursuing which it is not seldom stranded on the shore.

**Rosa, Carl August Nicholas**, originally Rose, a German opera manager and violinist; born in Hamburg, Germany, March 22, 1842. He came to the United States, where during a concert tour he met and married (in

New York, in February, 1867) Mme. Parepa; formed an opera company, including Mme. Parepa-Rosa, Wachtel, Santley, Ronconi, and Formes, traveling as far as California. After his wife's death (1874), he organized in London an English opera company with which he produced nearly a score of popular operas not previously given in English. He died in Paris, France, April 30, 1889.

**Rosa, Salvatore**, an Italian painter, etcher and poet; born near Naples, Italy, June 20, 1615. In 1638 Rosa settled in Rome, where he soon established his reputation and rose to fame and wealth. The bitterness of his satire, expressed both in his satirical poems and in an allegorical painting of the "Wheel of Fortune" rendered his stay in Rome inadvisable. He therefore accepted an invitation to Florence (1642), where he remained nearly nine years under the protection of the Medici. He finally returned to Rome. Salvatore Rosa delighted in romantic landscape, delineating scenes of gloomy grandeur and bold magnificence. Rosa etched from his own works with great skill. He died in Rome, Italy, March 15, 1673.

**Rosaceæ**, roseworts; an order of plants, placed by Lindley under his Rosal Alliance. The rosaceæ occur chiefly in the temperate and cold parts of the Northern Hemisphere; when they occur in the tropics it is generally on high land.

**Rosary**, in ordinary language, a chaplet, a garland. Also, a bed of roses; a place where roses grow. In comparative religion, a string of beads by means of which account is kept of the number of prayers uttered.

In the Roman Catholic Church: (1) A form of prayer in which the "Hail Mary" is recited 150 times in honor of the virgin Mary. (2) The beads on which any of the forms of prayers are said.

**Rosary Sunday**, the first Sunday in October; a feast instituted by Gregory XIII. for the Confraternity of the Rosary, and made of universal observance after the victory of Emperor Charles VI. over the Turks, in gratitude to the Blessed Virgin. An impetus has been given to the devotion of the rosary by Leo XIII., who en-

joined its daily use in public during October. Roses are blessed and distributed as souvenirs, and the rosary is recited continually during the day.

**Rose**, the beautiful and fragrant flower which has given name to the large natural order Rosaceae, which seems to be confined to the cooler parts of the Northern Hemisphere. The species are numerous and are extremely difficult to distinguish. They are prickly shrubs, with pinnate leaves, provided with stipules at their base; the flowers are very large and showy. The rose is easily cultivated, and its varieties are almost endless.

The American Beauty rose had its birth in an almost neglected corner of the Washington garden of the late George Bancroft. Amid a tangle of roses of common varieties suddenly blossomed this new and wonderful rose. Slips were at once experimented with. At first they were grown out of doors, but before long it was found that hothouse culture such as is given to tea roses was best suited to the splendid new rose. During the comparatively few years of its existence the American Beauty has been steadily improved in size and fragrance.

**Rose Acacia**, a highly ornamental flowering shrub inhabiting the S. parts of the Alleghany Mountains, and now frequently seen in gardens in Europe. It is a species of locust; the flowers are large, rose-colored, and inodorous; the pods are glandular-hispid.

**Rosebery, Archibald Philip Primrose, 5th Earl of**, an English statesman; born May 7, 1847; was educated at Eton and Oxford, and succeeded his grandfather in 1868. He is an advanced Liberal in politics, and a ready and effective speaker. He was under-secretary at the home office, 1881-1883; lord privy seal and first commissioner of works, 1885; next year held the secretaryship of foreign affairs till the fall of the Gladstone government; was secretary of foreign affairs again in 1892-1894; prime minister, 1894-1895. In 1878 he was elected lord-rector of Aberdeen University; in 1881 of Edinburgh University. In 1899 of Glasgow University. In 1889 he became a member of the London County Council, and was appointed chairman of that body. The University of Cambridge conferred the de-

gree of LL. D. on him in 1888. He advocated the reform of the House of Lords, and was much interested in the questions of imperial federation and the social conditions of the masses. In 1878 he married Hannah, daughter of Baron Mayer de Rothschild; she died in 1890. When Mr. Gladstone succeeded to power Lord Rosebery became Secretary of Foreign Affairs, and in October of the same year (1892) he was made a Knight of the Garter. On the resignation of Mr. Gladstone in March, 1894, the queen offered the post of prime minister to Lord Rosebery and he carried on the government with no little success till July, 1895. He then urged on his supporters that the general election should be fought on the question of the predominance of the House of Lords. During 1896 his attitude on the Armenian question differed from that of Mr. Gladstone, and finally he decided on resigning the leadership of the party in order to have for himself an absolutely free hand on this question. His view was that Great Britain should not be hurried into an intervention in the Armenian question, which would lead to the risk of a European war. In 1898 Lord Rosebery, from his place in the House of Peers, paid a noble and eloquent tribute to the life and public services of Mr. Gladstone, and later on spoke in the country in support of the attitude taken up by Lord Salisbury on the Fashoda situation. In 1899 he became Lord Rector of Glasgow University, and in 1902 President of the Liberal League. Died May 21, 1929 at Epsom, Eng.

**Rose Chafer** (*Cetonia aurata*), an injurious beetle, whose grubs destroy the roots of strawberries and other plants, while the adults spoil the flowers of roses, strawberries, and seed turnips. The adults, which are well able to fly from place to place, measure about an inch in length, are golden green above, coppery with a tint of rose beneath. The "rose-bug" of the Eastern United States is another beetle, a voracious pest which often appears in immense numbers and destroys the flowers of rosaceous plants.

**Rosecrans, William Starke**, an American military officer; born in Kingston, O., Sept. 6, 1819. He graduated at the United States Military

Academy in 1842, and entered the army as brevet 2d lieutenant of engineers, but after serving for a year at Hampton Roads returned to West Point as assistant Professor of Engineering. In 1847 he again entered active service, but resigned in 1854 to become a consulting engineer and architect in Cincinnati, O. He began his career in the Civil War by organizing and drilling the Home Guard in Ohio; and in June, 1861, was placed in charge of Camp Chase. He was made colonel of the 23d Ohio Volunteers soon afterward, and in a short time was appointed a Brigadier-General. In May, 1862, he commanded the right wing of the Army of the Mississippi during the siege of Corinth; and on June 11, 1862, succeeded General Halleck in the command of that army. On Oct. 26, 1862, he relieved General Buell of the command of the Army of the Cumberland, and on Oct. 30, began his memorable march to Nashville, Tenn. Owing to his defeat at Chickamauga in September of the following year he was superseded in command by General Thomas and assigned to the Department of Missouri. He was deprived of his command Dec. 9, 1864, whereupon he retired to Cincinnati, where he remained inactive till the close of the war. In 1868 he was appointed United States minister to Mexico; in 1880 and 1882 was elected to Congress; and in June, 1885, was appointed register of the United States Treasury. An act passed in 1898 restored him to the rank of Brigadier-General in the army and placed him on the retired list. He died near Redondo, Cal., March 11, 1898.

**Rosegger, Petri Kettenfeier**, an Austrian poet and novelist; born in Alpl, a small village in the Styrian Alps, July 31, 1843. His youth was one of great poverty, and at 17 he was apprenticed to a tailor; but the exceptional merit of his poetry secured him the patronage which enabled him to devote himself exclusively to literature. His first book, "Zither and Cymbals" (1869), a collection of poems in the Styrian dialect, met with immediate success. The best known of his other works, which include stories, sketches, and novels concerning the peasant life about him,

are: "Tales of the Alps" (1873); "Out of the Woods" (1874); "The Seeker after God" (1883); "The Last Jacob" (1888); "Hoch vom Dachstein" (1892); and "Peter Mayr" (1894).

**Rosemary**, the *Rosmarinus officinalis*, a native of the S. of Europe and Asia Minor, and cultivated in India, etc.; a very fragrant labiate



ROSEMARY.

plant with a white or pale-blue corolla. The leaves are sessile and gray with edges rolled round below. It is sometimes made into garlands.

**Rosenkranz, Johann Karl Friedrich**, a German philosopher; born in Magdeburg, Prussia, April 23, 1805. He was the best representative of the "center" of Hegel's school, and spent much time in rearranging and reclassifying the system. His principal works, nearly all of which have received English versions, are: "Psychology, or the Science of Subjective Mind"; "Critical Explanations of Hegel's System"; "Autobiography"; "The History of Literature." He died in Königsberg, Prussia, June 14, 1879.

**Roses, Wars of the**, a disastrous dynastic struggle which desolated England during the 15th century, from the first battle of St. Albans (1455)



to that of Bosworth (1485). It was so called because the two factions into which the country was divided upheld the two several claims to the throne of the Houses of York and Lancaster, whose badges were the white and the red rose respectively. It did for England what the French Revolution did three centuries later for France in virtually wiping out the old nobility.

**Rosetta**, a town of the Nile delta in Egypt, on the old Bolbitic arm of the river, 9 miles from its entrance into the Mediterranean and 44 miles N. E. of Alexandria. Two forts and a lighthouse stand near the mouth of the river. A bar of sand prevents large vessels from entering. Rosetta has been outstripped as a commercial port by Alexandria. In the time of the Crusades it was a place of great strength; and St. Louis made it the basis of his crusading operations. Sultan Beybars, after that (in 1251), founded the present city farther inland. The Arabs call it Raschid, believing that Haroun al-Raschid founded the old city. A few miles to the N. of the town was discovered the famed Rosetta Stone, which furnished the key to the Egyptian hieroglyphics. At Rosetta too are barrage works for holding up the Nile water till it can be directed into the irrigation channels. These works, originally constructed by Mougel Bey (1843-61), were almost entirely rebuilt by Sir C. Scott Moncrieff in 1886-90. The barrage is 508 yards long, and has 61 arches. Pop. about 20,000.

**Rosetta Stone**, the name given to a stone found near the Rosetta mouth of the Nile by a French engineer in 1798. It is a tablet of basalt, with an inscription of the year 136 B. C., during the reign of Ptolemy Epiphanes. The inscription is in hieroglyphic, in demotic, and in Greek. It was deciphered by Dr. Young, and formed the key to the reading of the hieroglyphic characters. It was captured by the English on the defeat of the French forces in Egypt, and is now kept in the British Museum.

**Rose Window**, a circular window, divided into compartments by mullions and tracery radiating from a center, also called Catharine wheel and marigold window according to modifications of the design. It forms

a fine feature of the church architecture of the 13th and 14th centuries.

**Rosewood**, a valuable wood, the best of which comes from Brazil. Two kinds, or two qualities, are known in commerce. These much resemble each other, the one, which is usually rather the better figured of the two, coming from Rio de Janeiro, and the other from Bahia. The South American and Indian kinds are all hard and durable and take a fine polish. They are in every way excellent furniture woods, the Brazilian kinds being only more valuable because they are more beautifully figured. The Indian rosewood is often elaborately carved by native workmen, and for this purpose it is well suited. An inferior kind of rosewood is brought from Honduras. The name is said to have been given because of a striking rose-like odor that the wood gives out when freshly cut.

**Rosicrucians**, a mystic secret society which became known to the public early in the 17th century, and was alleged to have been founded by a German noble called Christian Rosenkreuz, A. D. 1388. He was said to have died at the age of 106. The society consisted of adepts, who perpetuated it by initiating other adepts. The Rosicrucians pretended to be able to transmute metals, to prolong life,



ROSE WINDOW.

and to know what was passing in distant places. Many contradictory hypotheses have been brought forward regarding the Rosicrucians, and as it is admitted that their secret was never revealed, it is open to doubt if there was one to reveal. They are said to have died out in the 18th century.

**Rosini, Giovanni**, an Italian litterateur; born in Lucignano, Tuscany, Italy, June 24, 1776. His poem entitled "The Marriage of Jupiter and Latona" (1810) written on the occasion of the marriage of Napoleon with Maria Louisa, was awarded an imperial prize of \$2,000. He was the author of many works of prose and poetry. He died May 16, 1855.

**Rosmini, Antonio Rosmini-Serbati**, an Italian philosopher; born of noble family at Roveredo in the Italian Tyrol, March 25, 1797. He entered the priesthood and founded the charitable order of Rosminians which has branches in America, Italy, France, and Britain. He is regarded as the founder of modern Idealism in Italy. The chief points of his system are fully treated in his "New Essay on the Origin of Ideas," translated into English (1883). He was a most voluminous writer on religious and military subjects, as well as on philosophy. Died in Milan, Italy, 1827.

**Ross, "Charlie,"** the victim of a case of kidnapping, many years ago, which has not yet lost interest. On July 3, 1874, Charles Ross, son of Christian K. Ross, and aged about four years, while playing near his home in the suburbs of Philadelphia, was carried away by two men. The abductors, in newspaper advertisements, demanded \$20,000 for his return. Owing to the efforts of the police to capture them the boy was never returned, although the father raised the \$20,000, and sought to exchange it for the boy. His captors are supposed to have been two men, William Mosher and William Douglas, who were afterward killed while robbing a house on Long Island, and it is believed the boy died of neglect on a sloop in Newark Bay, on which they held him prisoner.

**Ross, Clinton**, an American novelist; born in Binghamton, N. Y., July 31, 1861; graduated at Yale in 1884. He has written: "The Silent Workman"; "Heroes of Our War With Spain"; "Bobbie McDuff," etc.

**Ross, Sir James Clark**, an English Arctic and Antarctic explorer; born in London, England, April 15, 1800. He entered the British navy at the age of 12, accompanied his un-

cle, Sir John Ross, on his two voyages in search of a N. W. passage, and in the interval between them accompanied Capt. William Parry in his three Arctic voyages. He was promoted to the rank of post-captain in 1834, particularly for the discovery of the North magnetic pole in 1831. He commanded the expedition in the "Erebus" and "Terror" to the Antarctic Ocean in 1839-1843; and on his return published a narrative of that voyage, which had contributed largely to geographical and scientific knowledge generally. Captain Ross was knighted for his services, and received numerous other honors. In 1848 he made a voyage in the "Enterprise" to Baffin Bay in search of Sir John Franklin. He died in Aylesbury, England, April 3, 1862.

**Ross, Sir John**, an English Arctic navigator; born in Inch, Wigtownshire, Scotland, June 24, 1777. In 1817 he accepted the command of an admiralty expedition to search for a N. W. passage but was unsuccessful. His next expedition, in the steamer "Victory," set out in May, 1829. Ross entered Prince Regent Inlet and discovered and named Boothia Felix and King William Land. In 1832 he was forced to abandon his ships, and he and his crew suffered great hardships before they were picked up in August, 1833, by his old ship, the "Isabella." In 1834 Captain Ross was knighted, and in the following year published a narrative of his second voyage. From 1839 till 1845 he was consul at Stockholm. In 1850 he made a last Arctic voyage in the "Felix," in a vain endeavor to ascertain the fate of Sir John Franklin. He died in London, England, Aug. 30, 1856.

**Ross, Man of.** See KYRLE.

**Rosse, William Parsons, 3d Earl of**, an English astronomer; born in York, England, June 17, 1800. In 1827 he constructed a telescope, the speculum of which had a diameter of three feet, and the success and scientific value of this instrument induced him to attempt to cast a speculum twice as large. After innumerable difficulties, and many failures, Lord Rosse succeeded in 1845 in perfecting machinery which turned out the huge speculum, weighing three tons, without warp or flaw. It was

then mounted in his park at Parsonstown, at a cost of \$150,000 on a telescope 54 feet in length with a tube 7 feet in diameter. A series of cranks, swivels, and pulleys enables this huge instrument to be handled almost with as much ease as telescopes of ordinary size. The sphere of observation was immensely widened by Lord Rosse's instrument, which has been chiefly used in observations of nebulae. He died Oct. 31, 1867.

**Rossetti, Gabriele**, an Italian poet and critic; born in Vasto, Abruzzo Citeriore, then forming part of the kingdom of Naples, Feb. 28, 1783. When King Ferdinand abrogated the constitution in 1821, the Constitutionalists were proscribed and persecuted, Rossetti among them. Rossetti made his escape from Naples with the kindly connivance of the British admiral, Sir Graham Moore, who shipped him off to Malta in the disguise of a British naval officer. In Malta he was treated with great liberality and distinction by the governor, and toward 1824 he went to London, with good recommendations, to follow the career of teacher of Italian, and follow his favorite studies.

In 1826 he married Frances Mary Lavinia Polidori, daughter of a Tuscan father and English mother; soon afterward he was elected Professor of Italian in King's College, London. In London Rossetti lived a studious, laborious, and honorable life, greatly respected by his pupils and by Italian residents and visitors. His health began to fail in 1842, and his sight became dim, one eye being wholly lost. After some attacks of a paralytic character he died in London, April 26, 1854. His son, Gabriel Charles Dante Rossetti, born May 12, 1828, died April 9, 1882, gained high reputation as poet and painter, and his daughter, Christina Georgina, born in 1830, also wrote poetry of a high order.

**Rossini, Gioacchino Antonio**, one of the most popular, and perhaps the greatest Italian composer of operas; born in Pesaro, Italy, Feb. 29, 1792. He produced some light operatic pieces; the only one of his juvenile efforts that has lived is the "Lucky Trick," which came out in 1812. "Tancred," brought out at Venice in 1813, when he was scarce-

ly more than 20 years of age, all at once made his name famous. Thus encouraged, Rossini produced a number of other works in quick succession, generally inferior to the work which brought him into popularity. In 1816 he produced his world-famous "Barber of Seville" at Rome. Among Rossini's other works which still keep the stage are: "Othello," "Moses in Egypt," "The Lady of the Lake," "Count Ory," and "William Tell." This last, the greatest and most original of his works, was written at the age of 37, and with it closed the career of Rossini as a composer. He died in his villa in Passy, near Paris, Nov. 13, 1868.

**Rossiter, Thomas Pritchard**, an American artist; born in New Haven, Conn., Sept. 29, 1817. He studied in Rome in 1840-1846, and on his return opened a studio in New York city. He became an Academician in 1849. In 1860 he removed to Cold Spring, N. Y., where he resided till his death. He devoted himself to historical and scriptural subjects. He had admirable taste in coloring. He died in Cold Spring, N. Y., May 17, 1871.

**Rostand, Edmond**, a French poet; born in Marseilles, France, in 1868; was educated in Paris; and in 1894 his first play "The Romanticists" was produced at the Comedie Francaise. It was an instantaneous success and was followed by "Princess Lontaine"; "The Samaritan"; "Cyrano de Bergerac"; and "L'Aiglon." The last two were translated into English and played in the United States by Richard Mansfield and Maude Adams; and in 1901 Coquelin and Sarah Bernhardt, the leading French actor and actress, presented the original versions in the United States. Rostand's versification is of remarkable beauty. On May 30, 1918, he was elected one of the 40 "immortals." In 1910 "Chanteclair," another of his plays, was produced. Died, 1918.

**Roster**, in military language, a term implying the seniority list from which officers are detailed for duty in regular succession; hence, occasionally, a list showing the turn or rotation of service or duty, as in the case of military officers and others who relieve or succeed each other.

**Rostrum**, plural **Rostra**, a scaffold or elevated platform in the Forum at Rome, from which public orations, pleadings, funeral harangues, etc., were delivered; so called from the rostra or beaks of ships with which it was ornamented. Also a pulpit, platform, or elevated place from which a speaker, as a preacher, an auctioneer, etc., addresses his audience.

**Rota Romana**, the highest ecclesiastical court of appeal for all Christendom during the supremacy of the Popes. With the dwindling temporal power of the Popes it gradually lost all authority in foreign countries.

**Rotation**, in astronomy, the turning round of a planet on its imaginary axis, like that of a wheel on its axle. The rotation of the earth is performed with a uniform motion from W. to E. and occupies the interval in time which would elapse between the departure of a star from a certain point in the sky and its return to the same point again. The only motions which interfere with its regularity are the precession of the equinoxes and nutation. The time taken for the rotation of the earth measures the length of its day. So with the other planets. The sun also rotates as is shown by the movement of spots across its disk.

**Rotation of Crops**, the cultivation of a different kind of crop each year, for a certain period, to prevent the exhaustion of the soil. If a plant requiring specially alkaline nutriment be planted year after year in the same field or bed, it will ultimately exhaust all the alkalis in the soil and then languish. But if a plant be substituted in large measure requiring siliceous elements for its growth, it can flourish where its alkaline predecessor is starved. Meanwhile the action of the atmosphere is continually reducing to a soluble condition small quantities of soil, thus restoring the lost alkalis.

**Rothschild** (red shield), the name of a Jewish family of European bankers and capitalists, the enormousness of whose aggregate wealth has passed into a proverb. The founder of this race of financiers, Meyer Anselm Rothschild, born at Frankfort-on-the-Main in 1743, died there in 1812, after

er having accumulated the most gigantic fortune ever possessed by a single individual up to his day. Commencing the world as a small trader, he, by his probity, frugality, and superior business qualifications, eventually became the banker of monarchs and the creditor of states. Of the five sons who succeeded to the vast inheritance he bequeathed them, the eldest, Anselm (born 1773, died 1855), was his father's partner and successor at Frankfort. The second, Solomon (born 1774, died 1855), became established as the representative of the house of Rothschild at Vienna. The third, Nathan Meyer, (born 1774, died 1836), settled as the London partner, and became the leading member and ablest financier of the family. The fourth, Charles (born 1788, died 1855), filled the representation of the firm at Vienna. Lastly, James (born 1792, died 1869), eventually took up his residence in Paris, where he died, leaving a fortune estimated at \$200,000,000. Within a period of less than 12 years the Rothschilds advanced in loans as follows: to England, \$200,000,000; Austria, \$50,000,000; Prussia, \$40,000,000; France, \$80,000,000; Naples, \$50,000,000; Russia, \$25,000,000; Brazil, \$12,000,000; besides some \$5,000,000 to smaller States; or, altogether, the almost incredible amount of \$462,000,000. The colossal financing operations of the house are now conducted by descendants of the above-mentioned brothers, and the firm has banking houses and representatives in the leading cities of the civilized world.

**Rotifera**, in zoölogy, wheel-animalcules; a group of Metazoa. They are microscopic animals, contractile, crowned with vibratile cilia at the anterior part of the body, which, by their motion, often resemble a wheel revolving rapidly. Intestine distinct, terminated at one extremity by a mouth, at the other by an anus; generation oviparous, sometimes viviparous. The nervous system is represented by a relatively large single ganglion, with one or two eye-spots, on one side of the body, near the mouth, and there are organs which appear to be sensory. They are free or adherent, but never absolutely fixed animals.

**Rotterdam**, the chief port and second city of Holland; on the Nieuwe Maas or Meuse, at its junction with the Rotte; about 14 miles from the North Sea, with which it is also directly connected by a ship canal (Nieuwe Waterweg) admitting the largest vessels and not interrupted by a single lock. The town is intersected by numerous canals, which permit large vessels to moor alongside the warehouses in the very center of the city. These canals, which are crossed by innumerable drawbridges and swing bridges, are in many cases lined with rows of trees; and the handsome quay on the river front,  $1\frac{1}{4}$  miles long, is known as the Boompjes ("little trees"), from a row of elms planted in 1615 and now of great size. Many of the houses are quaint edifices, having their gables to the street, with overhanging upper stories. Rotterdam contains shipbuilding yards, sugar refineries, distilleries, tobacco factories, and large machine works; but its mainstay is commerce. It not only carries on a very extensive and active trade with Great Britain, the Dutch East and West Indies, and other transoceanic countries, but, as the natural outlet for the entire basin of the Rhine and Meuse, it has developed an important commerce with Germany, Switzerland, and Central Europe. Rotterdam received town rights in 1340, and in 1573 it obtained a vote in the Estates of the Netherlands; but its modern prosperity has been chiefly developed since 1830. Pop. (1926 Est.) 562,991.

**Roubaix**, a noted industrial city of France, Department of Nord, on the Roubaix canal,  $2\frac{1}{2}$  miles from the Belgian border, 6 miles N. E. of Lille; is one of the chief seats of the French textile industry, over 50,000 persons being employed in the mills. It also produces machinery, rubber goods, and beer. Pop. (1926 Est.) 117,209.

**Rouble**, the unit of the Russian money system. The present silver rouble is equivalent to about  $80\frac{1}{2}$  cents in United States gold.

**Rouen**, a city of France, capital of the Department of Seine-Inferieure, and formerly of the province of Normandy, on the Seine, 44 miles from its mouth, and 67 N. W. of Paris. It is situate on the right bank of the

Seine, in a fertile, pleasant, and varied country. The streets, though in general straight, are narrow and dirty, and some of the houses are of wood. The most agreeable part of the town is that which adjoins the Seine. The public buildings of interest are the cathedral, containing many old monuments, and one of the finest specimens of Gothic architecture in France; the Church of St. Ouen, likewise a fine Gothic building, situate nearly in the center of the town; and that of St. Maclou, considered a masterpiece of its kind. Manufactures, cotton goods, woolens, linens, iron ware, paper, hats, pottery, wax, cloth, and sugar refining. Dyeing, both of woolens and cotton, is also conducted with care and success. Pop. (1926 Est.) 122,898.

**Rough Riders**, a name coined by William F. Cody ("Buffalo Bill"), for use in his "Wild West" show, which included a "Congress of the rough riders of the world." The first rough riders were the men who carried messages over the West in the early frontier times before the pony express was organized in 1859. In the army the original rough riders were the 1st Regiment of United States Volunteer Cavalry, organized for the war with Spain by Surgeon Leonard Wood, who was commissioned colonel, with Theodore Roosevelt as lieutenant-colonel. The name was applied also to the 2d United States Volunteer Cavalry. The name was given to these regiments on account of their being composed largely of Western ranchmen.

**Roulers**, a town of West Flanders, Belgium, on the Mandel river, an affluent of the Lys, 10 miles N. W. of Courtrai, 12 miles N. E. of Ypres. In the 11th and 12th centuries it was famous for its weavers. The French defeated the Austrians here in 1774. The principal industries are the cultivation of flax, and the manufacture of linens. In September, 1917, it was the central point in the great British offensive. Pop. (1926 Est.) 26,937. See APPENDIX: World War.

**Roumania**. See RUMANIA.

**Round**, in music, a short composition in which three or more voices starting at the beginning of stated successive phrases, sing the same music



## Roundelay

in unison or octave (thus differing from the canon).

**Roundelay**, a sort of ancient poem, consisting of 13 verses, of which eight are in one kind of rhyme and five in another. It is divided into couplets, at the commencement of the second or third of which the beginning of the poem is repeated, and that, if possible, in an equivocal or punning sense. Also, a song or tune in which the first strain is repeated. Also, the tune to which a roundelay was sung.

**Rounders**, a game played by two parties or sides, somewhat similar to baseball.

**Roundhead**, a term applied by the Cavaliers or adherents of Charles I., during the Civil War of 1642, to the Puritans or adherents of the Parliamentary party, from their wearing their hair cut short, while the Cavaliers allowed their hair to fall onto their shoulders.

**Round Robin**, a name given to a protest or remonstrance signed by a number of persons in a circular form, so that no one shall be obliged to head the list.

**Round Table, Knights of the.** According to tradition, there reigned in Britain, toward the end of the 5th century, a Christian king, the British Uther-Pendragon, who had for a counsellor a powerful, wise, and benevolent enchanter, named Merlin, who advised him to assemble all his knights distinguished for piety, courage, and fidelity toward him, at feasts, about a round table, which should be sufficiently large to receive 50 knights, but at which at first only 49 should be seated, room being left for one yet unborn. This was Arthur, or Artus, son of the king by Igera, whom the king, by the magic power of Merlin, was permitted to enjoy under the form of her husband. Merlin had exacted a promise that the education of the prince should be intrusted to him, and he accordingly instructed him in everything becoming a brave, virtuous, and accomplished knight. Arthur in due time occupied the empty seat at the Round Table; and under him it became the resort of all valiant, pious, and noble knights, admission to it becoming the reward of the greatest virtues and feats of arms.

## Rousseau

**Rouquette, Adrien**, an American Roman Catholic priest, poet, and missionary; born in New Orleans, La., in 1813. He was educated in France; graduated in Philadelphia, and ordained a priest by Bishop Blanc. He gave many years to missionary work among the Choctaws of St. Tammany. He was familiar with many tongues, and contributed much to French, American, and Italian literature. Several volumes of his verses and two or three prose collections were published in French, and he was a frequent contributor to the local press. He died in 1887.

**Rousseau, Jean Jacques**, a Swiss-French philosopher, one of the most celebrated and influential writers of the 18th century; born in Geneva, Switzerland, June 28, 1712. In 1741 he went to Paris, and in 1743 obtained the post of secretary to the French ambassador at Venice. This office he resigned, and returned to Paris in 1745, to lead a precarious life, copying music and studying science. In 1750 his essay, in which he adopted the negative side of the question whether civilization has contributed to purify manners, won a prize offered by the Academy of Dijon, and brought him for the first time into general notice. In 1752 he brought out a successful operetta (the music by himself), and soon after a celebrated "Letter on French Music."

In 1754 he revisited Geneva, but later returned to Paris where he wrote a sort of novel, "Julia, or the New Heloise," which was published in 1760, being followed by "The Social Contract," a political work, and "Emile, or on Education," another story, in 1762. The principles expressed in these works stirred up much animosity against their author. The confession of faith of the Savoyard vicar in Emile was declared a dangerous attack on religion, and the book was burned both in Paris and Geneva. Persecution, exaggerated by his own morbid sensibility, forced Rousseau to flee to England, where he was welcomed by Hume, Boswell, and others in 1766. A malicious letter by Horace Walpole unluckily aroused his suspicions of his English friends, and in May, 1767, he returned to France, where his presence was now tolerated.

He lived in great poverty, supporting himself by copying music and publishing occasional works. In May, 1778, he retired to Ermenonville near Paris. His celebrated "Confessions" appeared at Geneva in 1782. His works contain the germ of the doctrines which were carried into effect during the French Revolution. Rousseau was also a musical author and critic. He died in Ermenonville July 2, 1778, it is supposed a suicide.

**Rouvier, Pierre Maurice**, French Prime Minister; born at Aix, 1842. He became a lawyer, opposed Napoleon III.; supported Gambetta; was minister of commerce and the colonies 1881-82; under Ferry 1884-85; minister of finance 1887-92, 1894-1902; senator 1903. Prime Minister 1905. He died June 7, 1911.

**Rowan, Andrew Summers**, an American army officer; born in Gap Mills, Va.; was graduated at the United States Military Academy in 1881, and first came into prominence in 1898, when he was sent to communicate with General Garcia, after the declaration of the Spanish-American War. He landed from an open boat near Turquino Peak, Cuba, on April 24, 1898; marched through swamps and underbrush to the mountains, reached General Garcia, and successfully executed his mission, bringing back full information as to the insurgent army. After the war he was assigned to duty in the Philippine Islands. He was promoted to Major, U. S. A., in 1905, and was retired in 1909.

**Rowan, Stephen Clegg**, an American naval officer; born near Dublin, Ireland, Dec. 25, 1808; came to the United States when a boy, and on Feb. 1, 1826, was appointed a midshipman in the navy. He was promoted lieutenant, March 8, 1837; took part in the capture of Monterey and San Diego in the Mexican War, and, as executive officer of the "Cyane," in the bombardment of Guaymas. In the battle of the Nies, Upper California, he commanded the naval battalion under Commodore Stockton, and was especially commended for his skill in leading the landing party that made a successful attack on a Mexican outpost near Mazatlan. He was promoted commander Sept. 14, 1855. At the

outbreak of the Civil War he was on the "Pawnee," with which he engaged the Confederate battery at Acquia Creek on May 25, 1861; this being the first naval action of the war. He was promoted both captain and commodore, July 16, 1862, for gallantry in the Goldsborough expedition to North Carolina, and the engagements on Roanoke Island and Albemarle Sound. He forced the surrender of the forts at Newbern, N. C., and by the capture of Fort Mason restored National authority in the waters of North Carolina. He commanded the "New Ironsides" in the engagements with Forts Wagner, Gregg, and Moultrie; received a vote of thanks from Congress; and was promoted rear-admiral, July 25, 1866. After the close of the war Rear-Admiral Rowan was appointed to various executive offices; was promoted vice-admiral Aug. 15, 1870; and was chairman of the Lighthouse Board at the time of his retirement, Feb. 26, 1889. He died in Washington, D. C., March 31, 1890.

**Rowe, Nicholas**, an English dramatic poet; born in 1673. He was a king's scholar at Westminster; studied law at the Middle Temple, but devoted himself to literature. He filled several lucrative posts, and in 1715 became poet-laureate in succession to Nahum Tate. Rowe's tragedies are passionate and forcible in language, and his plots well conceived. Died in 1718, was buried in Westminster Abbey. His translation of "Lucan's Pharsalia," appeared after his death.

**Rowing**, the propulsion of a boat by oars. The oarsman sits with his face to the stern of the boat, his feet planted flush against his "stretcher" or footboard, and the handle of the oar in his hands, the loom of the oar resting in the rowlock, the "button" being inside the thowl-pin.

He should sit upright, with a rigid back, and do his work mainly with his back and legs, using his arms as couplings between his body and the oar handle, and only bending them toward the finish of the stroke. To row a stroke, swing the body forward from the hips straight toward the toes; extend the arms rigidly, brace the shoulders, and keep the head up. The hands should be holding the oar handle

about  $3\frac{1}{2}$  inches apart. The grasp should be with the fingers and not fist—i. e., the lower knuckles of the hand should be very slightly bent, almost straight, the hold being retained by the upper joints of the fingers and by the thumb. This mode of holding the oar gives freer play to the wrist-joints for the "feather." The body being thus extended, and the legs opened at the knees to allow the body free swing forward, and the hands thus grasping the oar handle, then the stroke is begun by raising the hands enough to allow the blade of the oar to sink into the water square. It is most important that the blade should be square to the plane of the surface of the water; otherwise, as soon as the stroke commences, the blade fails to preserve its own plane, and sinks too deep, or springs out of water, according as the face of it is inclined at an obtuse or acute angle to the water. Five weeks is a minimum time for full training where oarsmen have been out of practice; a shorter period may suffice if they have not been inactive long. Professionals usually train for three months.

**Rowland, Henry Augustus**, an American scientist; born in Honesdale, Pa., Nov. 27, 1848; was graduated at the Rensselaer Polytechnic Institute in 1870; was made Professor of Physics at Johns Hopkins University in 1876. He was a member of the Electrical Congress in Paris in 1881; served on the jury of the Electrical Exhibition held there that year, and was the inventor of a process of ruling large diffraction gratings directly on concave mirrors. He was made president of the American Physical Society in 1889, and received honorary degrees from Yale University, in 1895, and from Princeton University in 1896. He died in Baltimore, Md., April 16, 1901.

**Rowson, Susanna**, an English-American novelist; born in Portsmouth, England, in 1762. She appeared on the American stage for about a year; after which she settled in Boston, opening a school and turning her attention to literary pursuits. She wrote "Charlotte Temple: A Tale of Truth," and its sequel "Lucy Temple: or the Three Orphans." She died in Boston, Mass., Mar. 2, 1824.

**Royal Academy.** See ACADEMY OF ARTS.

**Royal Arcanum.** See FRATERNAL SOCIETIES.

**Royal Family of England**, the wife or husband, children or other descendants, and collateral relatives of the sovereign. The husband of a reigning queen does not acquire any share in her prerogative rights, but it is usual to grant him special precedence; King Philip and William III. were associated in title and power with their wives by act of Parliament. Of the sovereign's children, the eldest son is, of course, heir-apparent; he is born Duke of Cornwall, and he is always created Prince of Wales. The Prince and Princess of Wales and the Princess Royal (the eldest daughter of the sovereign) are within the protection of the statute of Edward III. relating to treason. An heir-presumptive to the throne has no special rank or precedence as such. The younger children of the sovereign take rank after the heir-apparent; by a statute of 1540 a place is assigned to them at the side of the cloth of estate in the Parliamentary chamber. On a reference by George II. to the House of Lords it was held that Edward, Duke of York, second son of the Prince of Wales, was entitled to a place among the king's children. In 1917 King George decreed the change of the name of the British Royal House from the House of Saxe-Coburg and Gotha to the House of Windsor. Members of the royal family have many special prerogatives.

**Royal Household**, those persons who hold posts in connection with the household of the British sovereign, including the keeper of the privy-purse and private secretary, lord-steward, treasurer, comptroller, master of the household, lord chamberlain, vice-chamberlain, master of the horse, captains of the gentlemen-at-arms and yeomen of the guard, master of the buck-hounds, earl-marshal, grand falconer, lord high almoner, hereditary grand almoner, mistress of the robes, ladies of the bedchamber, bedchamberwomen, maids of honor, lords-in-waiting, master of ceremonies, physicians in ordinary, poet laureate, etc.

**Royal Institution**, an institution founded in London, England, by Couns

## Royal Marriage Act

Rumford, Sir Joseph Banks, etc., March 9, 1799, and incorporated Jan. 13, 1800. It was reconstituted in 1810. The well-known objects are to diffuse knowledge, to facilitate the general introduction of mechanical inventions, and teach by lectures and experiments the application of science to the common purposes of life. It has, as a rule, had for its lecturers some of the first scientific men of the age; e. g., Thomas Young, Davy, Brande, Faraday, Tyn-dall, Frankland, and Rayleigh. It maintains professors of natural philosophy, chemistry and physiology, and has laboratories (including since 1896 the Davy-Faraday research laboratory presented by Dr. Ludwig Mond).

**Royal Marriage Act**, an act of George III. passed by the British Parliament in 1772, which forbids all descendants of George II., other than the issue of princesses married into foreign families, to contract marriage without the consent of the sovereign, signified under the great seal. But such descendants, if above the age of 25, may dispense with the consent of the crown, unless both Houses of Parliament expressly declare their disapproval within 12 months after notice of the intended marriage has been given to the privy council. Marriages otherwise entered into are void.

**Royal Observatory, Greenwich**, the famous English observatory founded by Charles II. in 1675. The first observation was made Sept. 19, 1675. The Director of the Observatory is styled the Astronomer Royal, and is under the official control of the Admiralty, but receives his appointment directly from the Prime Minister, and holds office by warrant under the royal sign manual. Longitude is commonly reckoned from here.

**Royal Society (London)**, a society for prosecuting research in general and physico-mathematical science in particular, founded in 1660.

Many of the most important scientific achievements and discoveries have been due to its enlightened methods. It deservedly enjoys an influential and semi-official position as the scientific adviser of the British government, and not only administers the \$20,000 annually voted by Parliament for scientific purposes, but has given suggestions and advice which have borne

## Royal University

valuable fruit, from the voyage of Captain Cook in the "Endeavor" in 1768 down to the "Challenger" expedition, more than a century later. The roll of the Royal Society contains practically all the great scientific names of its country since its foundation.

**Royal Society (Edinburgh)**, a Scotch society of a similar type to the English institution, which was incorporated in 1783, having been developed from the Philosophical Society of Edinburgh, commenced in 1729. Among its early members were Hume, Reid, Edmund Burke, Hutton, Dugald Stewart, and James Watt; and among its presidents have been Sir Walter Scott, Sir David Brewster, the Duke of Argyll, Lord Moncrieff, and Sir William Thomson.

**Royal Society of Literature**, a society founded in England under the patronage of George IV., in 1823, and chartered in 1826. It awards gold medals.

**Royal University of Ireland**, an institution founded in 1880 in pursuance of the provisions of the University Education (Ireland) Act, 1879, to take the place of the Queen's University, a similar institution established in connection with the Queen's Colleges. The Royal University corporation consists of a chancellor, a senate, and graduates, the government being vested in the chancellor and senators, the latter not to exceed 36 in number. It has power to confer all such degrees and distinctions as are conferred by any university in the United Kingdom except in theology, and these may be bestowed on all male and female students who have matriculated in the university and passed the prescribed examinations, no residence in any college or attendance at any course of instruction in the university being obligatory on any candidate for a degree other than a degree in medicine or surgery, the university in this respect resembling that of London. An act of 1881 provided for the payment of \$100,000 a year out of the surplus funds of the Irish Church for the purposes of the university, which has its seat at Earlsfort Terrace, Dublin. The university has a considerable staff of examiners, but of course no professors.

**Royce, Josiah**, an American educator and author; born in Grass Valley, Cal., Nov. 20, 1855. He became Professor of the History of Philosophy in Harvard in 1892, and published: "A Primer of Logical Analysis"; "The Religious Aspect of Philosophy"; "The Conception of Immortality"; and many articles and lectures. Died, 1916.

**Roye**, a town of N. France, Department of Somme, 24 miles S. W. of St. Quentin, 25 miles E. of Amiens, 55 miles N. E. of Paris; is in a fertile plateau producing a large amount of grain. The Church of St. Pierre was begun in the 11th century and completed in the 16th. The town was in the zone of the great struggle in the summer and fall of 1917. Pop. about 6,000. See APPENDIX: *World War*.

**Royer-Collard, Pierre Paul**, a French statesman; born in Sompuis, France, June 21, 1763. In 1811 he was appointed Professor of Philosophy in Paris, and exercised an immense influence on the philosophy of France. He was appointed president of the Commission of Public Instruction in 1815, but resigned that post in 1820; in 1815, also, he returned to political life as deputy for the department of Marne. The French Academy opened its doors to him in 1827; and in 1828 he was named president of the Chamber of Representatives, and in that capacity presented the address of the 221 deputies (March, 1830) withdrawing their support from the government, which the king refused to hear read. Next day the Chamber was prorogued. From 1842 Royer-Collard completely withdrew from public life. He died Sept. 4, 1845.

**Ruatan, or Roatan**, an island of Central America, in the Bay of Honduras; area, about 240 square miles. Surface, elevated; soil, fertile.

**Rubber Groves**, a name applied to the tracts of territory where the rubber of commerce is obtained. While the india-rubber of commerce has been obtained from many different parts of the globe, the world has been compelled to look to Central and South America for the bulk of its supply. South America, especially Brazil, is the territory on which the commercial world relies, the province of Para yielding the best rubber. See CAOUTHOUC.

**Rubble**, a common kind of masonry, in which the stones are irregular in size and shape.

**Rubens, Peter Paul**, a distinguished Flemish painter; born in Siegen, Westphalia, June 29, 1577. He went to Antwerp in 1608, and was soon after made court painter to the Archduke Albert, Spanish governor of the Low Countries. In 1620 he was employed by the Princess Mary de Medici to adorn the gallery of the Luxembourg with a series of paintings illustrative of the principal scenes of her life. While thus engaged he became known to the Duke of Buckingham, who purchased his museum. He was afterward employed by the Infanta Isabella and the King of Spain in some important negotiations which he executed with such credit as to be appointed secretary of the privy council. He acquired immense wealth, and was twice married, the second time, in 1631, to a lovely girl of 16. Rubens, beyond all comparison, was the most rapid in execution of all the great masters, and was incontestably the greatest perfecter of the mechanical part of his art that ever existed. His works are very numerous, and very diversified in subject. There are nearly 100 in the Picture Gallery at Munich. "The Descent from the Cross," at Antwerp, is perhaps his masterpiece. He died in Antwerp, May 30, 1640.

**Rubicon**, a river in North Italy (now the Fiumicino, a tributary of the Adriatic), famous in Roman history, Cæsar having by crossing this stream (49 B. C.), at that time regarded as the N. boundary of Italy, finally committed himself to the civil war. Hence the phrase "to pass the Rubicon" is to take the decisive step by which one commits one's self to a hazardous enterprise.

**Rubidium**, a metal much resembling cesium, with which it was discovered in 1860, by Bunsen and Kirchhoff, during the analysis of a spring of water which contained these metals in minute quantities. Rubidium has since been found in small quantities in other mineral waters, in lepidolite, and in the ashes of many plants. This metal is closely related, in properties, to potassium, but is more easily fusible and convertible into vapor, and actually surpasses



that metal in its attraction for oxygen, rubidium taking fire spontaneously in air. It burns on water with exactly the same flame as potassium.

**Rubinstein, Anton Gregor**, a Polish musician; born near Jassy, Rumania, Nov. 28, 1829. He was trained to music in Moscow by his mother and a master. Liszt heard him, "an infant prodigy," play in Paris in 1841, recognized his genius, and encouraged him to play in other cities. After some further "touring" he gave himself to serious study in Berlin and Vienna, and in 1848 settled in St. Petersburg as teacher of music. At St. Petersburg he succeeded in getting a musical conservatory founded (1862) and became its director. But his concert tours engrossed a good deal of his time, and in 1867 he resigned the directorship of the conservatory. In 1872 he went to the United States and had an enthusiastic reception. He ended his concert tours in 1886. He was induced in the following year to resume the directorship of the conservatory at St. Petersburg. From the Russian government he received a patent of nobility and other honors.

He was a strongly pronounced opponent of the principles of Wagner. As a pianist he held the highest rank, being usually reckoned the greatest since Liszt. He ceased playing in public some time before his death, which occurred in Peterhof, Russia, Nov. 20, 1894.

**Rubric**, in the language of the old copies of MSS. and of modern printers, any writing or printing in red ink; the date and place in a title-page being frequently in red ink, the word rubric has come to signify the false name of a place on a title-page. Thus, many books printed at Paris bear the rubric of London, Geneva, etc.

**Ruby**, a term applied popularly to two distinct minerals—the pyrope and the spinelle ruby, both of which are much valued as gems. The pyrope is a silicate of magnesia and alumina, and occurs chiefly in Saxony, Bohemia and Scotland. The spinelle ruby and its varieties, the orange-red rubicelle, and the violet or brown almandine, are aluminates of magnesia, with different proportions of iron and chromium. They are found mainly in Ceylon at Ava and in other parts of the

East Indies. Rubies are wonderfully imitated.

The ruby is one of the most exquisite products of nature, but it is becoming rare and more rare to find it perfect. A ruby may bring 10 or 20 times the price of a diamond of the same weight if it is really of a superior quality. In general the cutting as a brilliant is alone suitable for a fine ruby. The ruby is very hard, almost as hard as the sapphire.

The most beautiful rubies come from Ceylon, India, and China. There are mines in Burma which supply at least one-half of the world's production. The Burmese mines were reopened in 1900 under a London company. The mines of Pegu are nearly exhausted, or but little worked today. The regions where they are situated are dangerous of approach; besides, in the States of the Grand Mogul, the exportation of rubies is forbidden till they have been exhibited to the sovereign, who retains the most beautiful. The stone known under the name of the ruby of Siam is distinguished by its deep red color, somewhat resembling the garnet.

**Ruby Throat**, the *Trochilus colubris*, a species of humming bird, so named from the brilliant ruby red color of its chin and throat. In summer it is found in all parts of North America, up to lat. 57° N., being thus remarkable for its extensive distribution.

**Ruckert, Friedrich**, a German poet; born in Schweinfurt, Bavaria, May 16, 1788; was educated there and at Wurzburg. For some years he led a wandering life studying philology and poetry. His most popular books are the collection of lyrics entitled "Springtime of Love," and the reflective poems gathered together as "The Wisdom of the Brahman." He died Jan. 31, 1866.

**Ruckstuhl, Frederick Wellington**, an American sculptor; born at Breitenbach, Alsace; brought to St. Louis, Mo., in infancy, educated there and in Paris. Chief among much notable work is his sculpture scheme of "New York City Appellate Court."

**Rudder Fish**, a fish allied to the mackerel, very common in the Atlantic and Pacific Oceans, so named

from its habit of swimming around the sterns of ships, attracted, doubtless, by the refuse thrown overboard. The flesh is said to be coarse in flavor.

**Rudini, Antonio Starrabba di, Marquis**, an Italian statesman; born in Palermo, Sicily, in 1839. In 1869 he was minister of the interior and member of the Chamber of Deputies, serving in the Parliament till called to succeed Crispi as premier, Feb. 7, 1891. During the Mafia difficulty in New Orleans he recalled the Italian minister from Washington to enforce his demands on the United States government. He succeeded Crispi in 1891, was succeeded by Crispi in 1892, and was again made premier in 1896, when disasters to the Italian army in Abyssinia caused Crispi's fall. His third term of office closed June 29, 1898. He died Aug. 7, 1908.

**Rudolf I., or Rudolph**, founder of the present imperial dynasty of Austria; born in Limburg castle in the Breisgau, Germany, May 1, 1218. His possessions were greatly increased by inheritance and by his marriage, till he was the most powerful prince of Swabia. In 1273 the electors chose him to be German king; as, never having been crowned by the Pope, he was not entitled to be called kaiser or emperor. His accession was opposed by none; the Pope's consent was secured at the price of certain rights already parted with by Rudolf's predecessors. Rudolf spent the greater part of his life that remained in suppressing the castles of the robber knights and putting an end to their lawless practices. He died in Spire, July 15, 1291, and was buried in the cathedral there.

**Rue.** The common rue is a half-shrubby plant, two or three feet high, of a fetid odor and an acrid taste. The bluish-green leaves are pinnate, the flowers yellow; a native of Southern Europe, but grown in gardens in the United States, the East and West Indies, etc.

**Ruff**, a well known migratory bird that is a spring and summer visitor in North Europe, having its winter home in Africa. It is rather larger than a snipe; general plumage ash-brown, spotted or mottled with black, but no two specimens are alike. In the breed-

ing season the neck is surrounded by a frill or ruff of numerous long black feathers, glossed with purple, and barred with chestnut.

**Ruffe**, a fish from the rivers of Europe. It is olive-green, marbled and spotted with brown, and resembles the perch in habits. The name is said to be derived from the harsh sensation caused by its ctenoid scales.



RUE.

**Ruffed Grouse**, a North American species of grouse of the same genus as the hazel grouse of Europe. It is named from the tufts of feathers on the sides of its neck, and frequents forests and thickets.

**Rugby**, a town in Warwickshire, England; 83 miles N. W. of London and 30 E. S. E. of Birmingham. At the foot of the hill on which it stands the river Swift gave Wyclif's ashes to the Avon; close by at Ashby and at Dunchurch the Gunpowder Plot was hatched; the battlefield of Naseby was viewed by Carlyle from its school house in 1842, a few days before Arnold's death; it is within a drive of Stratford-on-Avon, Coventry, Kenilworth. It is at once the center of a great hunting district and the seat of

a world-famous public school. This probably accounts for the large number of residential houses there. The school was founded in 1567 by Lawrence Sheriff, a grocer and a staunch supporter of Queen Elizabeth, by a gift of property in Manchester Square, London. After maintaining its position for some time as a good school for the Warwickshire gentry and a few others, specially under Dr. James and Dr. Wool, it became of national reputation under Dr. Arnold, who in raising his school raised at the same time the dignity of his whole profession. Since his time the school has never lacked teachers, remarkable for independence of mind. Pop. 22,400.

**Ruger, Thomas Howard**, an American military officer; born in Lima, N. Y., April 2, 1833; was graduated at the United States Military Academy in 1854; became lieutenant-colonel of the 3d Wisconsin regiment in June, 1861; won distinction in numerous engagements during the Civil War; suppressed the draft riots in New York city in 1863; was brevetted Major-General of volunteers, Nov. 30, 1864; promoted colonel, U. S. A., in 1867; Brigadier-General in 1886; and Major-General in 1895; and was retired in 1897. Died in 1907.

**Rule Nisi, or Rule to Show Cause**, in United States and English law, an order granted by the court on an interlocutory application, directing the party opposed to the applicant to do or abstain from some act, unless he can show cause why the order should not be obeyed. If cause is shown, the order is "discharged," otherwise it is made "absolute," and the party ruled must obey on pain of attachment for contempt.

**Rules of the Road**, the official designation of regulations adopted by national or international authorities for the management of vessels in storms, fogs, or other danger. Under act of the United States Congress, in 1896, the rules already established were considerably changed to comport with the schedule to be observed by vessels of all civilized nations on and after July 1, 1897. These rules apply also to inland waters, excepting the Great Lakes, for which a special set has been devised.

**Ruling Machines**, instruments used for ruling paper, metal, etc. The first machine of this kind was invented by a Dutchman, resident in London, in 1782, and was subsequently greatly improved by Woodmason, Payne, Brown, and others. F. A. Nobert devised a ruling machine in 1845 for the production of microscopical test plates, diffraction gratings, and micrometers, etc., and more recently Benjamin Day, a New York artist, patented one for use by artists.

**Rum**, a spirit distilled chiefly in the West Indies from the fermented skimmings of the sugar-boilers and molasses, together with sufficient cane juice to impart the necessary flavor. Its peculiar flavor in due to butyric ether. Caramel is added for coloring. Much of the rum sold is merely plain spirit colored with burned sugar and flavored with rum flavoring. The Medford rum manufactured in Massachusetts is largely exported to Africa.

**Rumania**, a European kingdom, bounded by Hungary, Jugo-Slavia, Bulgaria, the Black Sea, and Russia; area, 122,282 square miles; pop. (1919) 17,393,149. It includes Bessarabia, Bukovina, Transylvania, Crisana, Maramuresh, Banat, Wallachia and Moldavia, and the province of Dobruja on the Black Sea (381,306). The capital is Bucharest; other chief towns are Jassy, Galatz, Braila, Ismail, Cernauti and Giurgovo.

The surface is mainly occupied by undulating and well-watered plains of great fertility, gradually sloping upward to the Carpathians on the N. and W. borders, where the summits range from 2,650 to 8,800 feet above sea-level. The entire kingdom is in the basin of the Danube, which has a course of 595 miles in Rumania, forming the boundary with Bulgaria nearly the whole way. The climate is much more extreme than at the same latitude in other parts of Europe; the summer is hot and rainless, the winter sudden and very intense; there is almost no spring, but the autumn is long and pleasant. Rumania is an essentially agricultural and pastoral state, fully 70 per cent. of the inhabitants being directly engaged in husbandry. The chief cereal crops are maize, wheat, barley, rye, and oats; tobacco, hemp, and flax are also

grown; and wine is produced on the hills at the foot of the Carpathians. Cattle, sheep, and horses are reared in large numbers. Excellent timber abounds on the Carpathians. Bears, wolves, wild boars, large and small game, and fish are plentiful. The country is rich in minerals of nearly every description, but salt, petroleum, and lignite are the only minerals worked. Manufactures are still in a rudimentary state.

Trade is fairly active, but it is almost entirely in the hands of foreigners; the internal trade is chiefly carried on by Jews, whose numbers and prosperity are constant sources of anxiety to Rumanian statesmen, and who are in consequence subject to certain disabilities. The chief exports are grain (especially maize), cattle, timber, and fruit; the chief imports, manufactured goods, coal, etc. Germany, Great Britain, and Austria-Hungary appropriate by far the greatest share of the foreign trade, the bulk of which passes through the Black Sea ports.

The Rumanians, who call themselves Romani, claim to be descendants of Roman colonists introduced by Trajan; but the traces of Latin descent are in great part due to a later immigration, about the 12th century, from the Alpine districts. Their language and history both indicate that they are a mixed race with many constituents. Their language, however, must be classed as one of the Romance tongues. The census of 1899 reported as to nationality of population, 5,489,296 Rumanians, 182,875 subjects of foreign States, 256,588 Jews under Rumanian protection, 104,108 Austro-Hungarians, 22,989 Turks, and 20,057 Greeks. Three-fourths of the population are peasants, who till 1864 were kept in virtual serfdom by the boyars or nobles. In that year upward of 400,000 peasant families were made proprietors of small holdings averaging 10 acres, at a price to be paid back to the State in 15 years. About 4,500,000 of the people belong to the Greek Church. Energetic efforts are being made to raise education from its present low level. Rumania has two universities (at Bucharest and Jassy), several gymnasia, and a system of free primary schools.

Rumania is a hereditary constitutional monarchy with a Legislature of two bodies. The Senate consists of various dignitaries and officials and 120 elected members; the Chamber of Deputies has 183 members, elected by all citizens paying taxes or possessed of a certain standard of education. The constitution, last revised in 1884, closely resembles that of Belgium. The king is assisted by a ministry of eight members. The army is modeled on the German system, service being compulsory from the age of 21 to 46.

The persecution of Jews in Rumania in view of their large immigration to the United States evoked protests from the American government. An anti-semitic agitation which began in 1906, developed into a serious agrarian revolt in 1907, and was only suppressed by firm military measures.

Rumania, like Serbia, suffered severely in the World War, despite heroic efforts to maintain her political integrity. On Sept. 3, 1916, her Dobruja territory was invaded by a joint Bulgarian and German force; on the 7th following she lost the Tutrakan fortress to the invaders, who occupied the Bulgarian city of Orseva; and on Nov. 28 following her capital (Bucharest) was occupied and the seat of government removed to Jassy. For further events, see APPENDIX: *World War*.

**Rumford, Benjamin Thompson, Count**, an American scientist; born in Woburn, Mass., March 26, 1753. He took the title Rumford from the village of that name (now Concord, N. H.), where he had married. He spent the last years of his life at Auteuil, busily engaged in scientific researches—particularly on the nature and effects of heat, studies with which his name is generally associated. His best known works include: "Essays: Political, Economical, and Philosophical" (1797-1806). He died Aug. 21, 1814.

**Ruminants, or Ruminantia**, a group of herbivorous mammals, belonging to the great order of hoofed or ungulate mammals, included in the Artiodactyle or "even-toed" section of these and comprising the camel, llama, true deer, giraffe, ox, sheep, goat, antelope, and others. The faculty of rumination is not quite peculiar to it.

## Rumination

Ruminants are distinguished from other orders by certain peculiarities of dentition. Most of the ruminants are suitable for human food. They are generally gregarious, and are represented by indigenous species in all parts of the world except Australia.

**Rumination**, the act of chewing the cud. The food of the ruminants is grass, which requires a longer series of chemical changes to convert a portion of it into blood than does the flesh of other animals eaten by the Carnivora. To produce these changes there is a complex stomach divided into four parts, the rumex or paunch, the reticulum or honeycomb bag, the psalterium or manyplies, and the abomasum or reed. A ruminant does not chew the fodder which it eats, but simply swallows it. When it has had enough it retires to a quiet spot, forces up again to the mouth a portion of the food in its paunch, thoroughly chews it and then swallows it again. Another and another bolus is thus disposed of. Each of these, started from the paunch, is forced next into the honeycomb bag, where it receives its form, and then goes up the gullet. On returning it passes direct from the paunch into the manyplies or third stomach, and thence to the abomasum. Fluids may pass directly into any part of the stomach.

**Rump Parliament**, in English history, the remnant, or fag-end of the Long Parliament, which was assembled on May 6, 1659, and dissolved October 15 in the same year; so called from the general contumely and derision with which it was treated by the English nation at large.

**Rumsey, James**, an American inventor; born in Bohemia Manor, Cecil co., Md., about 1743. He invented and patented a boat "calculated to work with greater ease and rapidity against rapid rivers" and one to be propelled by the force of a stream of water pumped out at the stern, etc. The Rumsey Society, of which Benjamin Franklin was a member, was founded in 1788 for the purpose of furthering his schemes, a similar society being founded in England a year later. Rumsey published "A Short Treatise on the Application of Steam" (1788). He died in London, England, Dec. 23, 1792.

## Runes

**Runes**. In the Scandinavian lands, Sweden, Denmark, and Norway, thousands of inscriptions have been found written in the ancient alphabet of the heathen Northmen. Similar records are scattered sparsely and sporadically over the regions which were overrun or settled by the Baltic tribes between the 2d century and the 10th. A few are found in Kent, England, which



### ENGLISH RUNES.

was conquered by the Jutes, others in Cumberland, Dumfriesshire, Orkney, and the Isle of Man, which were occupied by the Norwegians, and in Yorkshire, which was settled by the Angles. One or two have been found in the valley of the Danube, which was the earliest halting place of the Goths in their migration S.; and there is reason to believe that a similar alphabet was used by the Visigoths and Burgundians in Spain and France, while it is noteworthy that there is no trace of this writing having been used in Germany or by the Saxons and Franks.

The writing is called Runic, the individual letters are called runestaves, or less correctly runes, and the runic alphabet is called the futhorc, from the first six letters f, u, th, o, r, c. The old Norse word "run" originally meant something "secret" or magical. The oldest extant runic records may date from the 1st century A. D., the latest from the 15th or 16th, the greater number being older than the 11th century, when after the conversion of the Scandinavians the futhorc was superseded by the Latin alphabet.

The origin of the runic writing has been a matter of prolonged controversy. The runes were formerly supposed to have originated out of the Phœnician or the Latin letters, but it is now generally agreed that they must have been derived about the 6th



century B. C., from an early form of the Greek alphabet which was employed by the Milesian traders and colonists of Olbia and other towns on the N. shores of the Black Sea.

**Runjeet Singh**, called the "Lion of the Punjab," founder of the Sikh kingdom; born in Gugaranwalla, India, Nov. 2, 1780. His father, a Sikh chieftain, died in 1792, and the government fell into the hands of his mother. At the age of 17, however, Runjeet rebelled against his mother's authority, assumed the reins himself, and began a career of ambition. The Shah of Afghanistan granted him possession of Lahore, which had been taken from the Sikhs, and Runjeet soon subdued the small Sikh states to the N. of the Sutlej. He organized his army after the European model with the help of French and English officers, and steadily extended his power, assuming the title of rajah in 1812. He gradually increased his territory until he was ruler of the entire Punjab, and in 1819 had already assumed the title of Maharajah, or king of kings. In 1836 he suffered a heavy defeat from the Afghans, but until his death he retained his power over his 20,000,000 subjects. He died in Lahore, June 27, 1839.

**Runyon, Theodore**, an American diplomatist; born in Somerville, N. J., Oct. 25, 1822; was graduated at Yale University in 1842. At the outbreak of the Civil War he took command of the 1st Brigade of New Jersey Volunteers, and on April 27, 1861, started for Washington, D. C. On May 6 he reached the national capital, then in a state of great excitement because of an expected invasion by the Confederates with 3,000 men. He promptly took possession of exposed parts of the city and fortified its approaches, especially those at the Long Bridge. When the National army met its first defeat at Bull Run, and was fleeing toward Washington with the Confederates in close pursuit, he closed all approaches, planted cannon, and prevented both the panic-stricken National troops and the Confederates from entering the city. For thus saving the national capital he received the personal thanks of President Lincoln and his cabinet. Soon afterward he resigned from the army and re-

sumed the practice of law. In 1893 he became United States minister to Germany, and in September following was raised to the rank of ambassador. He died in Berlin, Germany, Jan. 27, 1896.

**Rupee**, a silver coin in use in the British dominions in India, with corresponding ones of much inferior workmanship and variable value in the native states. Prior to 1893 its variable value was a source of great inconvenience, but in that year standard rupee (32 cents) was established.

**Rupert of Bavaria, Prince**, an English military officer; born in Prague, Bohemia, Dec. 17, 1619. After some military experience on the Continent he went to England to assist his uncle, Charles I., and in 1648 he was made admiral of the English royal fleet. After the Restoration he was appointed lord-high-admiral. Many of his later years were devoted to scientific study, and he was formerly credited with the invention of mezzotint engraving. He died in London, Nov. 29, 1682.

**Rupert's Land**, an extensive but indeterminate region in the interior of Canada, named in honor of Prince Rupert, and transferred to the Hudson Bay Company, of which that prince was one of the founders, by Charles II. in 1670. This region is now included in Manitoba and the Western Territories, but its name still gives the title to the Bishop of Rupertsland, who resides at Winnipeg.

**Rupt de Mad**, a small stream in E. France, Department of Meuse, about 8 miles S. E. of St. Mihiel; is 30 miles in length; crosses the Department of Meurthe-et-Moselle; empties into the Meurthe at the French-Lorraine border 10 miles S. W. of Metz. Thiaucourt and Arnaville are on its banks.

**Rupture**, the breaking or laceration of the walls or continuity of an organ, especially of a viscus. Also the popular name for hernia.

**Rurik**, the founder of the Russian monarchy; flourished in the 9th century; he is generally considered to have been a Varangian of Scandinavian origin, and to have led a successful invasion against the Slavs of Novgorod about 862. He died in 879.

and his family reigned in Russia till the death, in 1598, of Feodor, son of Ivan the Terrible, when it was succeeded by the house of Romanoff. Many Russian families still claim a direct descent from Rurik.

**Rusby, Henry Hurd**, an American botanist; born in Franklin, N. J., April 26, 1855; was connected with the Smithsonian Institution in 1880-1896; appointed Professor of Botany, Physiology, and Materia Medica in the New York College of Pharmacy in 1888; Professor of Materia Medica at Bellevue Hospital Medical College; Curator of New York Botanical Gardens; revised botanical department of the "United States Pharmacopœia" in 1900-1901. He was a member of a large number of scientific societies and wrote "Essentials of Pharmacognosy"; "Morphology and Histology of Plants"; etc.

**Rush**, a genus of plants having a glume-like (not colored) perianth, smooth filaments, and a many-seeded, generally three-celled capsule. The species are numerous, mostly natives of wet or marshy places in the colder parts of the world; some are found in tropical regions. The name rush perhaps properly belongs to those species which have no proper leaves; the round stems of which, bearing or not bearing small lateral heads of flowers, are popularly known as rushes. The soft rush is a native of Japan as well as of Great Britain, and is cultivated in Japan for making mats. The common rush and the soft rush are largely used for the bottoms of chairs and for mats, and in ruder times, when carpets were little known, they were much used for covering the floors of rooms. The stems of the true rushes contain a large pith or soft central substance, which is sometimes used for wicks to small candles called rush-lights.

**Rush, Benjamin**, an American physician; born in Philadelphia, Dec. 24, 1745; he was graduated at Princeton in 1760; studied medicine in Philadelphia, Edinburgh, London, and Paris; and in 1769 was made Professor of Chemistry in the Philadelphia Medical College. Elected a member of the Continental Congress, he signed the Declaration of Independence (1776). In April, 1777, he was ap-

pointed surgeon-general, and in July physician-general, of the Continental army. In 1778 he resigned his post in the army because he could not prevent frauds on soldiers in the hospital stores, and returned to his professorship. He was a founder of the Philadelphia dispensary, the first in the United States. He next became Professor of the Theory and Practice of Medicine at Philadelphia, to which chair he added those of the Institutes and Practice of Medicine and Clinical Practice (1791); and of the Practice of Physic (1797); and during the epidemic of 1793 he was as successful as devoted in the treatment of yellow fever. In 1799 Rush was appointed treasurer of the United States Mint, which post he held till his death. He was called "the Sydenham of America" and his medical works brought him honors from several European sovereigns. He wrote "Medical Inquiries and Observations" (5 vols. 1789-1793); "Essays" (1798), and "Diseases of the Mind" (1821). He died in Philadelphia, April 19, 1813.

**Rush, Richard**, an American statesman; born in Philadelphia, Pa., Aug. 29, 1780; son of the preceding. He was graduated at Princeton College in 1797; and was attorney-general of the United States from 1814 to 1817. In 1817 he was temporary Secretary of State under President Monroe, and was by him appointed minister to England, from whence he was recalled in 1825 by President Adams, who made him Secretary of the Treasury. In 1828 he was candidate for the vice-presidency on the same ticket with President Adams, who was nominated for reelection, and received the same number of electoral votes. In 1836 President Jackson appointed him commissioner to obtain the Smithsonian legacy, then in the English Court of Chancery, in which he was successful, and returned in 1838 with the entire amount, \$515,169. In 1847 he was appointed minister to France. At the close of President Polk's term he asked to be recalled and spent the rest of his life in retirement. He died in Philadelphia, Pa., July 30, 1859. He left "Memoranda of a Residence at the Court of St. James," two volumes; "Washington in Domestic Life";

## Rushforth

"Occasional Productions, Political, Diplomatic, etc., while the Author resided as Envoy Extraordinary from the United States, at Paris," published by his sons (1860).

**Rushforth, William Henry**, an American inventor; born in Leeds, England, July 11, 1844; came to the United States in 1878 and was appointed engineer in a silk factory in Camden, N. J. He made many inventions, the most important being a fire-escape ladder, a series of automatic safety-car signals, and a feed-water heater, which received a silver medal and diploma at the Paris Exposition in 1887. He died in Rutherford, N. J., Aug. 21, 1892.

**Rusk, Jeremiah McLain**, an American agriculturist; born in Morgan co., O., June 17, 1830; removed to Wisconsin in 1858 and became a farmer. He entered the Union service during the Civil War, as major of a regiment he had raised, the 25th Wisconsin Volunteers; was promoted lieutenant-colonel in 1863; was brevetted colonel and Brigadier-General, 1865. From 1866 to 1870 he was bank-controller of Wisconsin, and represented his State from 1871 to 1877 in Congress. In 1882 he was elected governor of Wisconsin and served in that capacity till 1889. He was made secretary of the newly-created Department of Agriculture in 1889, and held this office till 1893. He died in Viroqua, Wis., Nov. 21, 1893.

**Ruskin, John**, an English author; born in London, Feb. 8, 1819. He studied at Christ Church, Oxford; gained the Newdigate prize in 1839, and graduated in 1842. In 1867 he was appointed Rede lecturer at Cambridge, and in 1870-1872, 1876-1878, 1883-1885 he was Slade Professor of Fine Arts at Oxford, where in 1871 he gave \$25,000 for the endowment of a university teacher of drawing. In "Modern Painters" he advocated a complete revolution in the received conventions of art and art criticism. Ruskin was the first art critic to place criticism upon a scientific basis. In 1851 he appeared as a defender of pre-Raphaelitism. About 1860 he began to write as a political economist and social reformer; his chief works in this sphere being "Unto this Last" "Munera Pulveris," and "Fors Clavi-

## Russell

gera," a periodical series of letters to the working men and laborers of Great Britain. In this connection he founded in 1871, "The Guild of St. George"; founded a linen industry at Keswick, and revived in Langdale, hand loom weaving. His works are entirely too numerous to admit of mention. After 1885 he lived at Brantwood, on Coniston Lake, where he died Jan. 20, 1900.

**Russell, Addison Peale**, an American journalist and essayist; born in Wilmington, Ohio, Sept. 8, 1826. He wrote: "Half-Tints"; "Library Notes"; "Sub Cœlum," etc.

**Russell, Sir Charles Arthur**, a British jurist; born in Killowen, Ireland, Nov. 10, 1832; was educated at Trinity College, Dublin. He defended the prisoner in the Maybrick murder case in 1889, and was counsel for the defendant (Parnell) before the Parnell Commission. He was counsel for Great Britain during the Bering Sea Arbitration Tribunal in 1893; became Lord Chief Justice of England; and was created 1st Baron Russell of Killowen in 1894. In 1896 he visited the United States as guest of the American bar association; and in 1899 was British arbitrator in the Venezuelan Boundary Tribunal. He died Aug. 10, 1900.

**Russell, Irwin**, an American verse-writer; born at Port Gibson, Miss., June 3, 1853. He was among the first to put the negro character to literary account. His dialect and other verse was collected after his death and published as "Poems" (1888). He died in New Orleans, La., Dec. 23, 1879.

**Russell, John, Earl Russell, K. G.**, an English statesman, third son of the 6th Duke of Bedford; born in London, Aug. 18, 1792. Educated at Edinburgh University, he entered Parliament in 1813 before attaining his majority. In 1819 he made his first motion in favor of parliamentary reform, of which through life he was the champion. In 1831 he was paymaster-general in Lord Grey's administration, and introduced the first Reform Bill to the House of Commons. From 1841 till 1845 he led the opposition against Peel, with whom, however, he was in sympathy on the Corn Law question; and when Peel re-

signed in 1846 Russell formed a ministry and retained power till February, 1852. In 1859 he became foreign secretary, the Trent affair with the United States occurring while he was in office. In 1861 he was raised to the peerage, and in 1865 succeeded Lord Palmerston in the leadership of the Liberal party; but when his new reform bill was rejected in 1866 he went out of office. He was the author of numerous books and pamphlets, including lives of Thomas Moore, Lord William Russell, and Charles Fox, and "Recollections and Suggestions" (1813-1873), published in 1875. He died May 28, 1878.

**Russell, John Scott**, a British naval architect, born near Glasgow, Scotland, in 1808. He became a science-lecturer in Edinburgh, and in 1832-1833 temporarily filled the chair of Natural Philosophy at Edinburgh University. Next year he began his important researches into the nature of waves, which led to his discovery of the wave of translation, on which he founded the wave-line system of naval construction introduced into practice in 1835. He was manager of a large shipbuilding yard on the Clyde for several years, and in 1844 established a yard of his own on the Thames. He was one of the earliest advocates of iron-clad men-of-war, and was joint designer of the "Warrior," the first English seagoing armored frigate; but the most important vessel he designed and constructed was the "Great Eastern." One of his chief engineering works was the vast dome of the Vienna Exhibition of 1873, which has a clear span of 360 feet. He was the author of "The Modern System of Naval Architecture," and other writings. He died in Ventnor, June 10, 1882.

**Russell, William, Lord Russell**, an English statesman, third son of the 5th Earl of Bedford; born Sept. 29, 1639. He entered Parliament immediately after the Restoration, and in 1669 married Rachel, Lady Vaughan. In 1679 he was a member of the new privy council appointed by Charles II. to ingratiate himself with the Whigs. Resigning in 1680, he became conspicuous in the efforts to exclude the king's brother, the Roman Catholic Duke of York, from the suc-

cession to the throne, but retired from public life when the Exclusion Bill was rejected. When the Ryehouse Plot was discovered in 1683, Russell was arrested on a charge of high treason, and though nothing was proved against him the law was stretched to secure his conviction. He was sentenced to death, and was beheaded in London, July 21, 1683. An act was passed in 1689 reversing his attainder.

**Russell, William Clark**, an English novelist; born (of English parentage) in New York city, Feb. 24, 1844. He spent much of his early life at sea; afterward settled at Ramsgate, Eng. Published a great number of sea stories and novels. He died Nov. 8, 1911.

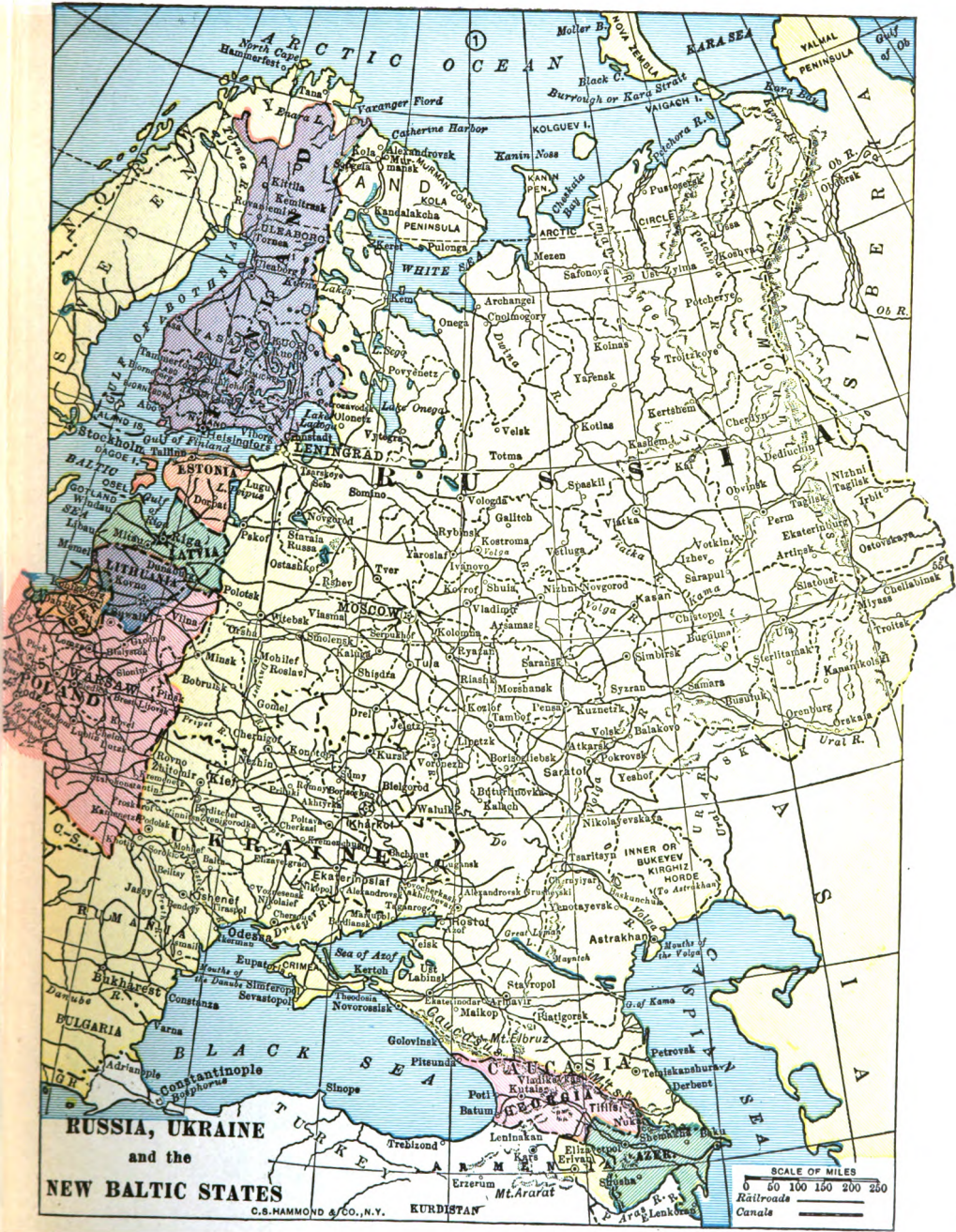
**Russell, William Eustis**, an American lawyer; born in Cambridge, Mass., Jan. 6, 1857; was graduated at Harvard University in 1877; was governor of Massachusetts in 1890-1892. He then resumed the practice of law, and became a member of the Board of Indian Commissioners in November, 1894. He was found dead in his fishing tent at Little Pabos, Quebec, Canada, on the morning of July 16, 1896.

**Russell, Sir William Howard**, an English journalist; born in Lilywater near Dublin, March 28, 1820. He was special war correspondent of the London "Times" in Crimea, India, the United States, Austria, France, South Africa, and Egypt, during various campaigns. He published "Extraordinary Men," "The Prince of Wales's Tour," etc. He received various honors from foreign governments and was knighted in 1895. He died Feb. 10, 1907.

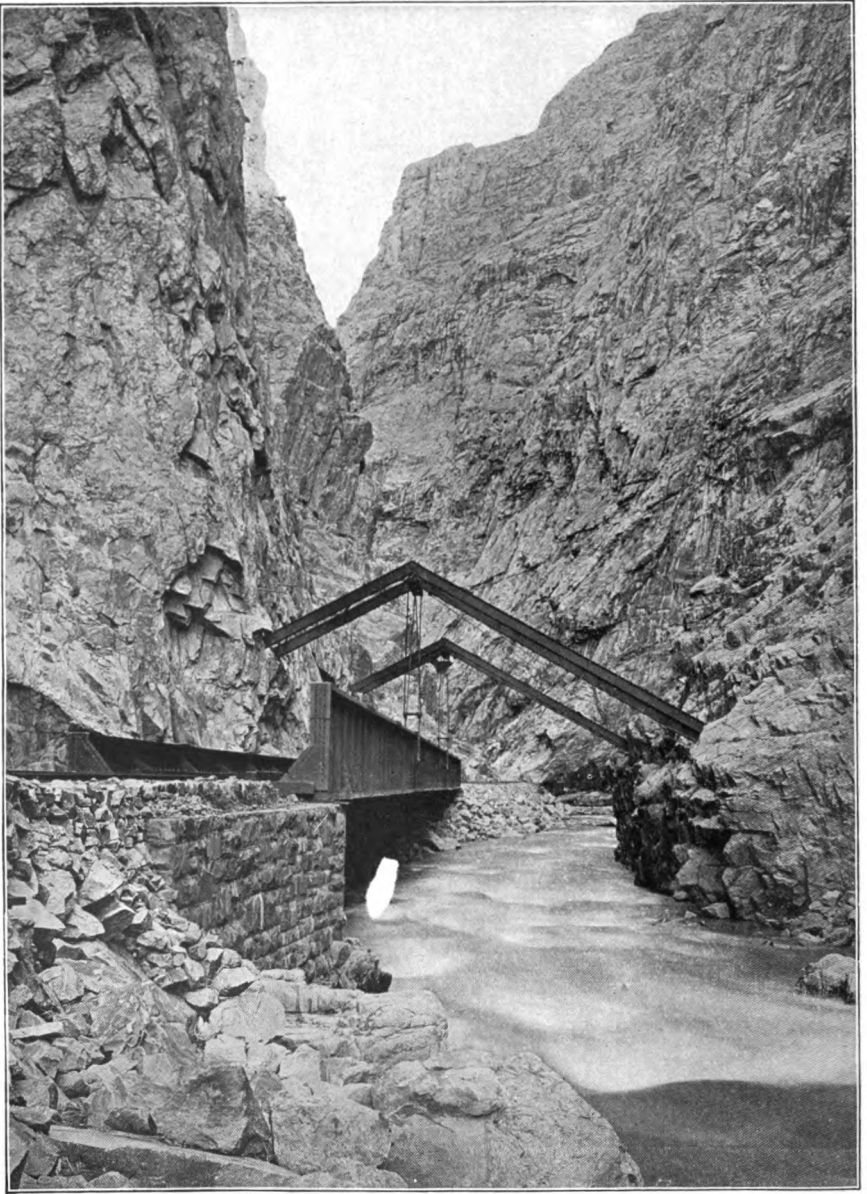
**Russia**, still one of the largest nations of the world, second only in extent to the British empire. It comprehends most of Eastern Europe and all Northern Asia, and is bounded N. by the Arctic Ocean; W. by Finland, Esthonia, Latvia, Poland and Rumania. These, except Rumania, former Russian territory; S. by the Black Sea, Turkey in Asia, Persia, Afghanistan, the Chinese empire; E. by the Pacific and Bering Strait. The total area has been officially estimated at 3,166,130 square miles; population (1922) was 131,546,065.

In the European parts of Russia alone the population increases an-









ROYAL GORGE, COLORADO—THE BRIDGE

nually at the rate of nearly 1,500,000. The largest cities are Moscow, now the capital, with (1923) 1,511,045; Leningrad, formerly St. Petersburg (then Petrograd), 1,067,328; Kiev, 403,730; Odessa, on the Black Sea, 316,740; Kharkov, 250,000; Kazan, 200,000; Vladivostok, 194,689.

European Russia consists almost wholly of immense plains, the Valdai Hills, between St. Petersburg and Moscow, averaging 500 feet and never exceeding 1,200 feet above sea-level, forming the only elevated region of the interior and an important watershed. The mountains include; the Caucasus, running from the Black Sea to the Caspian, reach the height of 18,500 feet; the Urals, stretching from the Caspian to the Arctic Ocean and separating European from Asiatic Russia, have their greatest height below 7,000 feet. Beyond the Urals are the vast Siberian plains.

The whole of the vast empire is watered by numerous rivers, some running a course of thousands of miles. Altogether Russia and Poland have 49,000 miles of navigable rivers. Asiatic Russia has also a number of very large rivers, as the Obi, Yenisei, and Lena in Siberia, and the Amur toward the Chinese frontier. This complete river system is of incalculable value to Russia, as by its means internal communication is carried on. Canals connect the navigable rivers, so as to form continuous waterways; there being 500 miles of canals and 717 of canalized rivers.

As may be expected from its vastness this empire offers soils and climates of almost every variety. Extreme cold in winter and extreme heat in summer, are, however, a general characteristic of Russian climates. As regards soil large sections of Russia are sandy, barren wastes and vast morasses. The most productive portion is that between the Baltic and the Gulf of Finland, and the Volga, on the N. and E.; Prussia, Austria, etc., on the W.; and the Black Sea on the S. It has, generally speaking, a soft black mold of great depth, mostly on a sandy bottom, easily wrought, and very fertile. The more S. portion of Siberia, as far E. as the river Lena, has, for the most part, a fertile soil, and produces, notwithstanding

the severity of the climate, nearly all kinds of grain.

Boundless forests exist, the area of the forest land in Europe being 42 per cent. of the total area. The fir, larch, alder, and birch predominate. Most of the forest land is now under government control, and waste is prevented. Agriculture remains the chief pursuit of the bulk of the population. For some years it has, however, remained stationary, while manufacturing industries are steadily going ahead. The chief crops are rye, wheat, barley, oats, hemp, flax, and tobacco. Vine and beet culture is rapidly increasing, and the breeding of horses and cattle is also extensively carried on.

Russia is rich in minerals. The precious metals are chiefly obtained in the Ural and Altai regions. Russia is the world's greatest source of platinum, producing about nine-tenths of all world's output. In the Ural, iron beds are also rich and numerous, exceeding all others in productiveness. Copper is most abundant in the government of Perm; lead in the Ural and other parts of Russia; saltpeter in Astrakhan. Of the coal mines those of the Don basin are the principal at present, those of Kielce ranking second; the mines around Moscow come next. About 60,000 tons of manganese ore are annually extracted in the Ural and the Caucasus. The petroleum wells of Baku on the Caspian now send their products all over Europe.

Prior to the accession of Peter the Great, Russia had no manufactures; he started them, and under the more or less fostering care of his successors and Russia's protective policy they have steadily grown. The latest statistics give a total of about 1,400,000 persons as being employed in the various manufacturing industries. Two-fifths of the entire production comes from the two capitals, St. Petersburg and Moscow. The various manufactures rank approximately as follows: spirits, sugar, cottons and yarns, flour, tobacco, foundry products, flax, yarn, and linen, leather, woolen cloth and yarn, iron, machinery, beer, soap, timber, paper, oil, glass, chemicals, agricultural implements.

The bulk of Russia's external trade is carried on through the European

frontier and the Baltic and Black Sea ports.

When, on July 28, 1914, Austria-Hungary declared war on Serbia, Russia began mobilizing her army for the treaty-bound protection of Serbia. This act was followed by the declaration of war against Russia by Germany on Aug. 1; by Austria-Hungary, Aug. 6, with a counter-declaration the same day; by Russia against Bulgaria, Oct. 19, 1915, and by Russia, England, France, Belgium, and Serbia against Turkey, Nov. 5-10, 1915. For the events of the ensuing struggle, see **APPENDIX: World War.**

With the fall of Imperial Russia in 1917 stupendous events followed that were to change the whole destiny of the nation. A provisional government under the direction of The Duma, Russia's national legislative body, with Prince George Lvoff as the head of the new government. Alexander Kerensky became Premier on Aug. 6, 1917. The All-Russian Congress of Workmen's, Soldiers' and Peasants' Deputies finally seized the power in a revolutionary movement on Nov. 7, 1917. The military Revolutionary Committee of the Soviet of Petrograd, with Vladimir Ilitch Lenin and Lev Davidovich Trotsky at the head, overthrew the government of Kerensky, and the dictatorship of the proletariat was set up. The official name of the new government became the Russian Socialist Federal Soviet Republic. It was announced that this commission was fashioned upon Karl Marxian social and economic theories. By the end of 1917 the theories of nationalization were in almost absolutely complete operation, confiscation having proceeded without limitation, private capital being no longer permissible. The new government became firmly established, not even the death of Lenin in 1924 having any effect upon its stability.

The first act of the new government was her withdrawal from her alliance with the allied and associated powers in the World War. She signed a separate treaty of peace with Germany on March 3, 1918, at Brest-Litovsk. The Ex-Czar, Nicholas II, and his entire family, consisting of the Empress, his daughters and only son, the Charevitch, were murdered while pri-

soners at Ekaterinburg in July, 1918.

The present government of Russia has as its nominal head Alexis I. Rykov, who succeeded Lenin as President of the Council of People's Committee, thus actual power, however, is vested in the committees whose heads include Zenoviev, Stalin, Leo Kamenev, Leon Krossin, George Tchitcherin, M. I. Kalinin and others.

**Russian Expansion, in the 19th Century.** At the opening of the 19th century, the Russian empire, with a territory of some seven and a half millions of square miles, was by far the largest state in the world. Its population, however, of, say 40,000,000, though greater than that of France or Germany, was smaller than that of the part of India already under British control, and insignificant compared with the teeming swarms in China. The huge, thinly settled dominions of which Alexander I. became ruler in March, 1801, extended over three continents; and except where they reached the seas which for the most part closed them in rather than served as outlets, and except where they were cut off from China by the range of the Tian-Shan mountains, they lacked almost everywhere natural geographical boundaries. Since then the growth of Russia has been of a two-fold kind, namely, the filling up of vacant spaces within her own borders and an expansion along obvious lines; for, over and above the ambition of individuals and the accidents of historical development, we can perceive the great natural forces which have determined her march toward the open sea and toward immediate contact with the firm limits of the other chief powers of the civilized world. On the other hand, it is noteworthy that certain impulses which have often built up empires have in her case been conspicuously absent. Even in Russia the days of crusades are nearly over, while those of commercial expansion are only just beginning. Nationalism, too, which has made modern Germany and Italy, though it led the government of the czar in the 19th century to attempt with more or less success the Russification of his subject peoples, did not influence changes of boundaries. The partition of Poland had already brought under one rule all the

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branches of the nationality (Great, Little, and White Russians) except the three millions of Little Russians once Polish subjects, now Austrian, and in religious communication under their own rites, with Rome, not Moscow. United Russia has with this exception, long been a fact, and the shallow, unpractical doctrines of Panslavism have brought no lost sheep into the national fold.

For the sake of clearness, we shall trace the changes first on one and then on another of the frontiers of the empire, rather than follow strictly chronological order, noticing at the outset that almost all the gain since 1815 has been made in Asia, while the European acquisitions belong to the earliest years of the century, and Russian America has ceased to exist. We thus get the keynote to the policy that has been followed and the ground of its success. Progress has been made along the lines of least resistance and most profit. There has been comparatively little desire to annex thickly settled regions inhabited by highly civilized peoples; and at the other extreme the region we now call Alaska was abandoned as too remote to be worth the effort of retaining. Russian territory is hence not only larger but more compact than it was a century ago.

Beginning with the European and N. W. frontier, the first great acquisition of the czars in the 19th century was the province of Finland. Finland had been for 600 years a part of Sweden; the upper classes and the populations of the towns spoke Swedish, and the whole people had accepted Lutheran Protestantism. In spite also of some discontent, chiefly among the aristocracy, the land as a whole was perfectly loyal to the government at Stockholm. What made a Russian conquest of Finland almost inevitable sooner or later was the position of St. Petersburg. Peter the Great founded his capital on his enemy's soil, and even the victorious treaties concluded by him and by his daughter Elizabeth, still left the town within a few miles of the frontier. How great the danger might be was shown in 1789 by the sudden attack of Gustavus III. of Sweden, at a moment when the Russian armies were in the far South operating against the Turks. Probably nothing but the mistakes of the

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Swedish king and the disloyalty of his officers saved Russia on this occasion from the humiliation of seeing her capital fall into the hands of the enemy. The peril still existed, for, however weak Sweden was herself, her territory might be used as a base of operations by some stronger power. It is not remarkable, then, that Alexander profited by the first opportunity of despoiling his neighbor, showing, indeed, little scrupulousness as to his methods. In 1807 his coalition against France had failed, for Austria had submitted to Napoleon after the battle of Austerlitz, Jena had made the conqueror master of Prussia, and Friedland exposed the czar's own lands to invasion and to the dangers of a Polish revolt. He accordingly reversed his policy, and after the interview on the raft in the Niemen and the peace of Tilsit (June 7, 1807), the two sovereigns, now sworn friends, agreed to combine against England and to divide the continent of Europe, as suited them. In return for a free hand in the West, the French emperor abandoned Sweden and Turkey to the czar. If in this transaction we can hardly blame Napoleon for showing little tenderness for his fanatical opponent, Gustavus IV., who had declared him to be the beast of the Apocalypse, Alexander might have been expected to have some hesitation in attacking a recent ally who had given him no real provocation. Even though the blindly foolish conduct of Gustavus did furnish the pretext wanted, the act was one of cold-blooded and successful rapacity. Finland, in spite of the bravery of her troops, was badly defended, owing to the incompetence of the king and some of his officers. By the treaty of Frederikshamm (Sept. 17, 1809) Sweden surrendered the province, and three years later, Charles XIV. (the former French Marshal Bernadotte) actually entered into an alliance with Russia, accepting definitely what had happened, in return for the prospect of getting Norway.

Thus Finland was added with little difficulty to the territories of the czar, but the circumstances connected with the acquisition are a burning question today. Alexander I. had been brought up in the cosmopolitan ideas of the 18th century, so different from the rabid nationalism of the present

time. He was as anxious as anyone to enlarge his possessions, but the idea that they must have an exclusive Russian character was not one that would appeal to a prince and court whose language in everyday life was French. Then, too, in this the earlier period of his reign, he was full of liberal dreams. His sentimental nature saw no incongruity in his being at the same time autocrat of all the Russias and constitutional sovereign of peoples used to a freer form of government. As a result, he treated Finland with startling liberality; he made it a grand-duchy, almost independent of Russia, except in foreign affairs; he gave it a constitution based on the former one of Sweden, and he even added to the province that part of its lands that had been conquered and taken away by Peter the Great and Elizabeth. Under this regime Finland has greatly prospered; unfortunately, however, the prosperity has not unnaturally excited the anger and envy of Russians. They point out that the grand-duchy has had all the advantages of its connection with a mighty empire without bearing its proportionate share of the burdens, and they declare that what a czar had given a czar can take away, and that the promises of Alexander I. cannot be regarded as binding on his successors when they entail an obvious injustice to the rest of his peoples. More than once has the autonomy of Finland been menaced, and at the present time when the reaction against Liberalism is still dominant, and when Russia, like many other countries, is under the fierce influence of a national spirit that would like to impose one language, one law, and even one religion on all the peoples of the empire, the privileges of the grand-duchy are more than menaced. Already the separate tariffs, stamps, and coinage are gone: the army is to be raised to the same proportionate strength as that of Russia, and practically incorporated with it; affairs common to all parts of the emperor's domains are to be settled in St. Petersburg alone; Russian will be the official language, and more is yet to come. The Finns have protested and entreated, but as they are far too weak to be able to offer forcible resistance, their ultimate

fate would seem to be only a question of time.

The same spirit which influenced Alexander as regards Finland dictated his conduct toward his Polish provinces. Though of the three powers that had partitioned Poland, Russia had obtained the largest share, she had acquired comparatively few subjects of strictly Polish blood. The great majority of the genuine Poles (with their two capitals, Warsaw and Cracow) had fallen to Prussia and Austria, while the Empress Catherine had taken territories chiefly inhabited by Lithuanians and Little and White Russians, which she might hope in time to assimilate with the rest of her empire. Alexander I. early showed an eagerness for all the Polish territory that he could get. At the peace of Tilsit it was arranged that he should obtain the province of Bialystok, at the expense of his faithful ally the Prussian king; at the peace of Vienna (1809) he was given the district of Tarnopol in Galicia in return for his pretense of assisting Napoleon in the war against Austria; in 1814 and 1815 at the Congress of Vienna he pushed to the verge of a general European conflict his claim to the whole grand-duchy of Warsaw, and yielded only to the combined opposition of Austria, England, and France, which forced him to content himself without Galicia and Posen. But Alexander's policy in all this was far from being a national one; on the contrary, under the influence of his friend Prince Czartoryski, he re-created the constitutional kingdom of Poland, the old rival and at one time the dangerous enemy of Russia; and he even would have given to it the disputed Lithuanian territories but for the unanimous opposition of his Muscovite subjects. However well meant, it is very questionable whether the experiment tried in 1815 was not doomed to failure from the outset. Since that time the frontiers of the czar's dominions in this region have remained unaltered; but the kingdom of Poland disappeared after the insurrection of 1830, and its last national privileges were taken away after that of 1863.

When we turn to the South we find that the war between Russia and Turkey, which ended with the peace of Bucharest in 1812, gave to the czar



the territory of Bessarabia between the Dniester and the Pruth. Alexander's proverbial good fortune served him well here, as, in order to use all his forces against Napoleon's great invasion he needed peace, in spite of his victories, more than did the Turks. Seventeen years later, by the peace of Adrianople in 1829, Russia acquired the islands of the Danube delta, which she lost again in consequence of the Crimean War and has never got back, though the part of Bessarabia that she was deprived of after her defeat was returned to her by the treaty of Berlin. Her frontier is thus practically the same as it was after 1812, though she had a different neighbor. Instead of the Ottoman empire, which she now no longer touches in Europe, she is contiguous to the independent kingdom of Rumania.

In the mountainous regions of the Caucasus, the spread of Russian rule has been marked by an almost uninterrupted series of wars and expeditions, during the first three-quarters of the 19th century. Already, in 1782, Heraclius, Prince of the Christian State of Georgia, had put himself under the protection of Catharine II. This led to war with the Shah of Persia, who claimed the overlordship of the country. Paul I. withdrew the Russian troops that had been sent, but in 1801 the last Prince of Georgia abdicated in favor of the czar, and Alexander I. promptly dispatched fresh forces to the rescue. In 1803 and 1804 the Georgian dependencies of Mingrelia and Imeritia were taken over, and hostilities with Persia continued till the treaty of Gulistan in 1813, by which Russia obtained not only Georgia and its appurtenances, but also the coast of the Caspian at the E. end of the Caucasus, including the famous pass of the Iron Gates. The war of 1826-1828 brought a fresh accession of Persian territory in the shape of the provinces of Erivan and Nakhchivan, with a frontier extending to Mt. Ararat. The fierce mountaineers of the main chain, however, especially the Circassians in the W. and the Lezgians and Tchesmeans in the E., long defied the efforts of the great armies employed against them. For many years the Russian government occupied only the coast of the Kuban on the Black Sea to cut off the Circassians

from foreign aid, and it was not till 1864 that they were finally subdued, and the chief tribes N. of the mountains were given the choice of moving into other less inaccessible lands or of emigrating into Turkey. In the E., in Daghestan, Kazi Mollah and his more famous successor Shamyl after 1824 kept up a desperate resistance repeatedly escaping or defeating the expeditions sent against them, till the capture of Gunib and of Shamyl himself in 1859. From Turkey, Russia acquired by the treaty of Adrianople the regions about the towns of Poti and Achalzig; by the treaty of Berlin, the seaport of Batum and the territory and fortress of Kars, though owing to the opposition of England she was obliged to retrocede the city of Bayezid, near Mt. Ararat, which had been surrendered to her at San Stefano. The province of Transcaucasia now has an area of 94,000 square miles and a population of some eight and a half millions, unequaled perhaps in the world for variety of nationality and language.

On the other side of the Caspian, in the huge but thinly inhabited regions of central Asia, we find the greatest extension of Russia in the last century, and particularly in the latter half; for previous to the reign of Alexander II. she had done little but occupy a few bases of operations and send Perovski's unfortunate expedition against Khiva in 1839 and 1840. Even leaving out of consideration any ambition of the statesmen of St. Petersburg to push the borders of the empire toward the open sea, or to occupy such a position on the flank of India as would force Great Britain to think twice before making trouble in other parts of the world, the conquest of Turkestan (as it used to be called) was inevitable, sooner or later. No uncivilized modern State submits in the long run to the neighborhood of a jumble of barbarous principalities and tribes, unable and often unwilling to maintain order within their own boundaries or to prevent depredations beyond them. The Muscovite campaigns in central Asia may have been due to political schemes of the time or to the ambition of individuals, but at bottom they were brought about by perfectly natural causes, like the spread of British rule

in India after it had once obtained a real foothold. It is unnecessary here to do more than recapitulate the chief steps.

By 1864 Tcherniaiev had conquered most of the region to the E. of the Syr-Daria, or Jaxartes; in the following year he took Tashkend by storm; in 1868 Samarcand was annexed and the defeated Emir of Bokhara compelled to submit; in 1873 Kaufmann made his successful expedition against Khiva, which was reduced to a vassal state and the desert regions to the E. and W. of it were added to the empire; in 1876 Khokand, having revolted against its khan, was subdued and annexed. Up to this point Russian progress had been from the N., and much impeded by the huge desert stretches the troops had been obliged to traverse. Now, immediately after the last war with Turkey which so nearly led to a conflict with England, we find the Russians starting from a new base of operations, their posts at the S. E. of the Caspian, and pushing with more conscious purpose along a line just N. of the Persian frontier, maintaining their communications and greatly strengthening their position by building the Transcaspian railway behind them. In 1881 Skobelev took Geok Tepe by storm; two years later Merv surrendered without resistance; in 1885 Komarov defeated the Afghans at the Kooshk river; and the frontier marked out by the Anglo-Indian Delimitation Commission in the following year gave Russia the district of Penjdeh. Farther to the E., in the high mountains of the Pamir plateau, the meeting place of empires, a definite boundary which now brings the two mighty rivals into immediate, if almost inaccessible contact, was established in 1895. In Persia the conflict of influence between them has lasted for the greater part of the century, and still continues. At present, a treaty made recently seems to put the government at Teheran financially in the hands of that of St. Petersburg, but as yet we cannot call Persia a part of the dominions of Nicholas II. any more than we can say Afghanistan belongs to King Edward. On the other hand, Khiva and Bukhara (most maps to the contrary notwithstanding) are as much a portion of

the Russian empire as any native Indian state is of the British.

To the N. E. of central Asia, Kool-dja, in the valley of the upper waters of the Ili river, had fallen into a state of anarchy at the time of the great Dungan rebellion against China. Profiting by the confusion, as the district was on their side of the mountains and seemed only a natural geographical continuation of their own province of Semiretchinsk, the Russians occupied it and held it for 10 years. The Chinese, however, having reestablished their authority elsewhere, now demanded back Kooldja, to obtain which they appeared ready to go to war if necessary. As such a war would have been most unwelcome to the government at St. Petersburg it yielded after some negotiation, and gave up the greater part of the territory, though retaining the W. portion.

Turning now to Siberia, we find that almost the whole of it has belonged to Russia since much earlier than the 19th century. Its recent history, therefore, has chiefly been one of internal development and of filling up with an immigrant population, for long very slowly, but with an ever-increasing rush in the last dozen years. The Trans-Siberian railway, whose traffic is already far beyond the estimates will greatly facilitate the development of the fresh sources of wealth of many kinds that are being discovered; and the annual immigration, in spite of a tendency on the part of the government to restrict it, has risen to something like two hundred thousand people. What Siberia needed most was an outlet to the E., for the treaty of Nerchinsk, in 1689, had cut off Russia for nearly two centuries from the lower valley of the Amur and any sea-coast with a temperate climate. One man, Muraviev (appointed Governor of East Siberia in 1847), acting on his own initiative and in spite of coldness and of some hostility on the part of his superiors, made a marvelous change in the situation. Trusting to the decay of Chinese strength and authority in these regions, he descended the Amur river and established on its banks a series of posts, including the factory of Nikolaievsk at the very mouth (1851); and finally, profiting by the Taiping rebellion, the troubles of China with England and France, and the general

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confusion and imbecility at Peking, he signed after six days' negotiation in 1858 the treaty of Aigun, which, supplemented by that of Peking two years later, gave Russia not only the whole N. bank of the Amur, but also the maritime province between its S. affluent, the Ussuri, and the sea, with the site of the present city of Vladivostok. The importance of these acquisitions can hardly be overestimated. Russia not only gained a rich territory of extreme value to the rest of Siberia, but her relations with the Chinese empire were revolutionized; she now had a position of vantage which properly defended, was of great strategic and commercial importance.

We may note as a small later gain the part of the island of Sakhalin held by the Japanese and ceded by them in 1875 in return for the Kurile Islands, but we need not include in our account here the interference of Russia in the Chinese-Japanese War, her designs on Korea, her lease of Port Arthur and Talien-Wan, and her acquisition of partially sovereign rights in Manchuria. In none of these cases was there definite, absolute cession of territory, though it practically amounted to this for Liao-tung peninsula; still, in view of what was happening in China, these last events may be treated as mere preliminaries to a chapter of history belonging to the 20th century. It is worth noting, however, that in her attitude toward China, Russia seemed to be partly actuated by the modern motives of commercialism, which hitherto had played little role in her history, owing to the very recent industrial development. In concluding our survey of the changes of boundaries of the empire of the czar, we must not forget that, on the American continent, not only did the attempt to found settlements near the Columbia river in 1809 and in California in 1812 lead to nothing, but in 1867 Russia sold all her American possessions, amounting to over half a million square miles, to the United States for the small sum of \$7,200,000. See ALASKA.

When we try to sum up our impressions of a century of Russian expansion, the first glance at the figures should show us the error of the common Anglo-Saxon notion that we are dealing with a particularly rapacious

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power growing faster than any other. Counting up gains and losses, we find that the increase of Russian territory during the century has been far less than that of Great Britain, or of the United States, or even of France, and is hardly larger than the colonies acquired by Germany in the last 15 years. Even as lately as a generation ago, the Russian empire was double the size of the British; it is now the smaller of the two by over 30 per cent. Its great accession of strength has come chiefly from the natural growth of its population and the development of its resources. If it were suddenly reduced today to its frontiers of the year 1800, it would still be the second largest State in the world, with a population of over a hundred millions of inhabitants. What makes the power of Russia appear so imposing, and her advance so irresistible, is not so much the size of her armies and the skill and ambition of her statesmen, whose reputation has often been exaggerated; it is rather the compactness of her enormous mass which gives her the same sort of practical invulnerability possessed by the United States. Whereas we can without much difficulty conceive of a war that would deprive England or France or Germany of all their colonial possessions, and even mutilate their territories so that they would forfeit indefinitely the position of great world powers which they now hold, such a disaster is almost inconceivable of Russia. She might be beaten by a coalition, and exhausted, as she was by the Crimean War; she might lose Finland, Poland, her territories S. of the Caucasus; none of these would affect her vitally, and even the taking away of her coast on the Pacific might check, but could not prevent the development of Siberia, and would be difficult to maintain in the end. However the extremities might suffer the great national bulk of the empire would remain little harmed and would need but a few years' rest to begin to expand again along natural lines. No wonder that the progress of Russia has been likened to that of a glacier. This progress, like that of every conquering empire has been marked by much that is unjustifiable, but though perhaps there has been more Eastern crookedness in her methods than in those of

some other countries, on the score of rapacity or the desire to extend the benefits of civilization,—call it what you will,—no one of the great nations of the world can afford to throw stones at the others. The Anglo-Saxon finds it difficult to sympathize with Muscovite ideals of government, and is often loud in his denunciation of the practices of the Russians; but he must admit that with the possible exception of Finland and Poland, all the regions which have passed under their rule in the 19th century have found it, whatever its faults, unquestionably superior to anything they had before known.

A. C. COOLIDGE.

**Russo-Japanese Dispute and War.** Japan's victory over China in 1894-95 in regard to Korean suzerainty, was followed by Russia's diplomatic victory over Japan, when, with the aid of France and Germany, Japan was forced to accept an indemnity in lieu of the command of the Liao-tung Peninsula at the S. extremity of Manchuria. Russia, however, in 1898 obtained virtual control of the peninsula from China by the lease of Dalny and Port Arthur, the principal ports, and further increased her advantage by a military occupation of Manchuria during the Boxer troubles in 1901, undertaking, however, to evacuate the disputed territory finally by Oct., 1903. Manchuria and Korea were indispensable to Russia as a base for Asiatic absorption. They were equally indispensable to Japan, as affording living room for her surplus millions, the expansion of her commerce, and as a barrier from foreign aggression. Long-protracted diplomatic representations on the part of Japan in regard to Russia's continued encroachments in Manchuria and Korea and failure to keep her promise of evacuation were ignored by Russia, and on Feb. 6, 1904, Japan, after notification, ceased further negotiations. War began without a formal declaration on Feb. 9.

**Port Arthur and Chemulpo Attacks.** (Feb. 8 and 9.) Togo and Uriu commanding the Japanese and Alexieff the Russians. Russia lost 2 vessels sunk and 7 disabled; the Japanese, 2 torpedo boats sunk. The victories gave Japan the command of Far Eastern waters.

**Yalu River.** (May 1.) The Japanese, under Kuroki, defeated the Russians under Zassalitch, thus opening the way to the invasion of Manchuria. 71,500 men were engaged, the casualties being 3,196 Russians to 1,039 Japanese.

**Nan-Shan Hill and Kin-Chow.** (May 26.) This victory of the Japanese, under Oku, cut Port Arthur off from the north. 140,000 men were engaged, the casualties amounting to 1,704 Russians and 3,500 Japanese.

**Wafang-Kao.** (June 14 and 15.) Stakelberg's attempt to reinforce the Port Arthur garrison was defeated by Oku, the former losing 4,635 men and the latter 1,120. 120,000 were engaged.

**Liao-Yang.** (Aug. 26 to Sept. 4.) The first general conflict between the two entire armies, Kuropatkin and Oyama commanding in person. Of the 420,000 men engaged the Russian casualties are given at 22,056 and the Japanese at 17,539. The victory lay with Japan. Kuropatkin's retreat to Moukden was masterly.

**Sha River.** (Oct. 11 to 21.) A second contest between the same commanders and forces as at Liao-Yang resulted in another virtual draw, although the Russians were compelled to continue their retreat. Total casualties, 83,747—67,868 Russians and 15,879 Japanese.

**203-Metre Hill.** (Nov. 30.) The bloodiest of the conflicts waged about Port Arthur, the Japanese victory leading directly to the later surrender of the town. The Russians lost in killed and wounded about 3,000, the Japanese fully five times as many.

**Port Arthur.** Isolated on May 14, 1904; surrendered Jan. 2, 1905; a siege of 232 days. The garrison (43,632 men with 778 guns) was commanded by Stoessel; the attacking force (87,902 men, with 608 guns) by Nogi. From Aug. 19 31 distinct attacks were made and 3 sorties; the fighting was practically continuous. The total casualties have been given as: Russian, 32,745; Japanese, 97,480. Russia surrendered 24,369 men, 546 guns, 82,670 shells, 127 tons of powder, 35,252 rifles, 2,266,800 cartridges and 1,920 horses. The victory had cost Japan about \$100,000,000, while the Russian financial loss, including

the value of the destroyed fleet, was not less than half again as much. Considered as a demonstration of the pitch to which human fortitude and valor may be carried, the siege of Port Arthur reflects the highest credit on both the defenders and the assailants.

Hun River (Sandepas). (Jan. 25 to 29.) Gripenberg's brave but fruitless attempt to turn the wing of Oyama's army cost him 12,000 men, with a loss to his enemy of but 5,000; 150,000 were engaged.

Moukden. (Feb. 24 to March 12.) The greatest of the land actions of the war, Oyama and Kuropatkin again facing each other with forces of from 700,000 to 800,000, engaged along a front extending from 60 to 100 miles. Japan's casualties amounted to 41,222; those of Russia to nearly 90,000. 40,000 Russian prisoners were taken. Oyama's spoils included 60 guns, 200,000 shells, 60,000 rifles, 25,000,000 rifle cartridges, 2,000 horses, 350,000 bushels of grain and fodder and 1,000,000 bread rations. In the numbers engaged, in extent of the field, in the duration of the struggle and in the magnitude of the losses Moukden so far overshadows all previous battles.

The Sea of Japan. (May 27 to 28.) The annihilation of the combined fleets under Rojestvensky (36 vessels of all classes, mounting 372 guns) by the Japanese fleet under Togo (32 vessels of all classes, with a number of torpedo boats, the whole mounting 330 guns), at a cost to Russia of \$73,500,000 and the gain to Japan of absolute command of the situation in the Far East. Six battleships, 5 cruisers, 1 coast defence vessel, 2 special service boats and 3 destroyers of the Russian fleet were sunk, and 2 battleships, 2 coast defence vessels and 1 destroyer were captured, along with 3,000 prisoners, including Admirals Rojestvensky and Nebogatoff; 8,550 Russians were killed or drowned, including Admiral Voelkersam. Japan accomplished this at a cost to herself of 3 torpedo boats sunk, 113 men killed and 444 wounded.

Total forces engaged since the outbreak of the war was estimated at 1,540,000.

Of these the killed, permanently disabled and invalided home were computed at 625,000; 375,000 Russians and 250,000 Japanese.

In money (including property destroyed) the war cost Russia \$1,075,000,000. On June 5, 1905, it was estimated that the cost to Japan was \$475,000,000, bringing the total money cost (at the time of the agreement to peace parleys) to \$1,550,000,000. In ships of all classes the Russians lost 68 and the Japanese 24.

June 9, 1905, President Roosevelt opened diplomatic correspondence with the fighting powers looking to peace; two days later Russia and Japan pledged themselves to a peace parley.

The real close of the long struggle between the envoys at Portsmouth came when Japan made her sudden and unexpected concessions in the matter of indemnity and Saghalien. The Japanese offer to sell to Russia half of the island for \$600,000,000, Japan's estimated war expenses, was refused by Russia. The Japanese then offered to compromise on the division of Saghalien. The Russians at once accepted.

**Rustchuk**, a town of Bulgaria, on the right bank of the Danube, where that river is joined by the Lom; opposite Giurgevo, and 42 miles S. W. of Bucharest. Its position makes it a place of considerable strategic importance. The numerous mosques constitute its chief architectural features. It was nearly destroyed in the Russo-Turkish war, and the Berlin Congress ordered the dismantling of its fortifications. Pop. (1923) 41,574.

**Rutland**, city and capital of Rutland county, Vt.; on Otter creek and the Delaware & Hudson and other railroads; 68 miles S. of Burlington; has important manufactures; large trade in dairy products, grain, wool, and lumber; chief industries, quarrying and manufacture of marble and slate; contains a Federal Building, Baxter Memorial Reference and Free Public libraries, State House of Correction, State Penitentiary, and the first State Capitol. Pop. (1930) 17,315.

**Rutledge, Edward**, an American statesman; born in Charleston, S. C., Nov. 23, 1749; was a member of the Continental Congress in 1774-1777; and one of the signers of the Declaration of Independence. He was lieutenant-colonel of the Charleston Artillery



which aided in expelling the British from the island of Port Royal in 1779; and was captured in 1780 and imprisoned for a year in St. Augustine. At the conclusion of hostilities, he resumed the practice of law in Charleston; and was elected governor of South Carolina in 1798. He died in Charleston, S. C., Jan. 23, 1800.

**Rutledge, John**, an American jurist, brother of Edward; born in Charleston, S. C., in 1739. He was a member of the South Carolina convention of 1774 that decided to take part in the Continental Congress, and a delegate to the latter body in 1775; chairman of the committee that framed the South Carolina constitution in 1776, and elected that year president of the new State government and Commander-in-Chief of the militia. In 1778 he was again elected governor of South Carolina. In 1780, when Charleston was captured by the British, he retired to North Carolina, joining Greene's army; but resumed the governorship at the close of the war. In 1782 he was elected to Congress, and reelected in 1783. He was a member of the convention that framed the Constitution of the United States. In July, 1795, he was appointed by Washington Chief Justice of the Supreme Court and served the August term of that year; but his mental faculties failing, he was not confirmed by the Senate in December. He died in Charleston, South Carolina, July 23, 1800.

**Ryan, Abram Joseph**, an American verse-writer; born in Norfolk, Va., Aug. 15, 1839. It was while chaplain in the Confederate army that he wrote his well known poem "The Conquered Banner," composed shortly after Lee's surrender. He died in Louisville, Ky., April 22, 1886.

**Ryan, Carroll**, a Canadian author; born in Toronto, Ont., Feb. 3, 1839. On leaving the army, where he served during the Crimean War, he devoted himself to journalism and literature. He edited and published a number of Canadian newspapers, contributed articles and poems to magazines, and lectured on the Liberal side. His published works include: "Oscar, and Other Poems," "The Canadian Northwest and the Canadian Pacific Railway."

**Ryan, Patrick John**, an American Roman Catholic prelate; born in Thurles, Ireland, Feb. 20, 1831. He was ordained deacon in 1853; raised to the priesthood in 1854; was elected coadjutor archbishop of St. Louis in 1872; promoted archbishop in 1883; transferred to the see of Philadelphia in 1884; and died there, Feb. 11, 1911.

**Ryan, Thomas Fortune**, capitalist; b. Oct. 17, 1851, Nelson Co., Va. With an elementary education he became a drygoods clerk in Baltimore, in 1870 went to New York, in 1876 became a member of the N. Y. Stock Exchange, and since identified with Southern financial, national steam and electric railroad, municipal lighting, and insurance interests.

**Rye**, a grain universally cultivated which grows on poor, light soils.

**Rye House Plot**, in English history a conspiracy, planned in 1683, the immediate object of which was to assassinate Charles II. and his brother, the Duke of York (afterwards James II.), as they returned from the Newmarket races, but it was frustrated by the king and his brother happening to return from Newmarket earlier than was expected. The detection of the plot led to the arrest, on a charge of high treason, of Lords William Russell, Essex, and Algernon Sidney, who were in no way connected with it. Essex put an end to his own life in the Tower, while Russell and Sidney were beheaded.

**Rymer, or Rhymer, Thomas**, the (Thomas Lermont of Erceuldoune), a Scotch poet of the 13th century, who occupies an important place in the mythical and legendary literature of Scotland. His name is associated with fragments of rhymed or alliterative verse, many of which have been collected and published as "The Prophecies"; and "Sir Tristram: A Metric-al Romance."

**Rzeszow**, a town of Poland in Galicia, midway between Cracow and Lemberg, 25 miles W. of Jaroslau, on the Wislok river, and on the railroad that pierces the Carpathian Mountains S. of Tarnow. Its history dates back to the Middle Ages of the Kingdom of Poland. Pop. about 27,000.

# S



s, the 19th letter and the 15th consonant of the English alphabet. It represents a hissing sound and is classed as a sibilant.

**Saba**, a small West Indian island belonging to Holland and governed as a dependency of Curacao. It consists of a single volcano cone furrowed by deep, wooded, and fertile valleys. Area 5 square miles; pop. 2,500.

**Sabæans**, the name of the ancient inhabitants of Yemen in Southern Arabia.

**Sabbatai Zevi, Sabbathais Zevi**, or **Sabtai Zefi**, a false messiah, the founder of a widespread sect of semi-Christians and semi-Jews throughout Europe, Asia, and Africa; born in Smyrna, Turkey, in 1641. He led thousands of followers, mainly in Smyrna, Salonica, Alexandria and Jerusalem, to believe in him as the Messiah. In 1664 about 80,000 people belonged to the new empire. But later he was apprehended at Smyrna and terrified into something like a recantation of his mission. Finally the grand vizier was persuaded to imprison Sabbatai once more, and to send him to Albania or Servia, where he died in prison—according to some, in consequence of poison, while according to others he was executed in 1677, 10 years after his conversion.

**Sabbatarian**, in the 16th century, a sect who considered that the Christian Sabbath should be kept on the seventh day (Saturday). In modern times the word means one who holds that the Lord's day is to be observed among the Christians in exactly the same manner as the Jews were enjoined to keep the Sabbath; one who holds rigid views of Sabbath observance.

**Sabbath**, a sacred day of rest (the word being derived from shabath, Hebrew, to rest), the institution of which is first mentioned in Gen. ii: 2-3.

The prevailing interpretation is that the Sabbath was instituted at the creation, for mankind in general, and that septenary institutions may therefore be expected in all nations. Prior to the giving of the law from Mount Sinai, the Sabbath is mentioned in connection with the descent of manna. The keeping holy of the Sabbath is enjoined in the fourth commandment.

During their early history the observance of the day became a test of the religious condition of the Hebrews. It was at times rigorously enforced, and at other times neglected. After the Exile, a code was issued, minutely defining the acts which were to be regarded as desecrating the Sabbath. Jesus, by act and word, reproved the formalism, and was denounced by the Scribes as a Sabbath-breaker. The Gentile converts to Christianity disregarded the Jewish Sabbath, but, recognizing the need of a weekly day devoted to religion, set apart the first day of the week, for the purpose, thereby commemorating the resurrection of Christ.

**Sabellianism**, in Church history, the name given to the doctrines of Sabellius, a presbyter of Ptolemais in Egypt, in the third century. He taught that the Trinity is one in essence, but threefold in relation to the world. He compared the Godhead to the sun, the Son to its illuminating effects, and the Holy Spirit to its warming influence. He taught that these manifestations were not simultaneous, but successive. The teaching was a species of Pantheism.

**Saber, or Sabre**, a sword having a curved blade, specially adapted for cutting. That for heavy cavalry has a slightly curved, heavy blade. The light cavalry saber has a lighter blade, somewhat more curved. The horse-artillery saber is still shorter, lighter, and more curved, and has but one branch to the guard.

**Sabianism, Sabæanism, or Tsabaism**, a faith which recognized the unity of God, but worshiped angels or intelligences supposed to reside in the stars and guide their motions, whence the lapse, at least on the part of the common people, to the worship of the stars became easy. They had sacrifices and sacred days, and believed in a future state of retribution. They were once numerous in Arabia, Syria, and Mesopotamia, and their sacred books were in Syriac.

**Sabin, Florence**, American anatomist. A graduate of Smith Coll. and of the Medical School of Johns Hopkins Univ., in 1906 she was appointed associate Professor of Anatomy at the latter institution.

**Sabien**, a leguminous hardwood tree of Cuba, employed in shipbuilding and cabinet work.

**Sabine, Sir Edward**, a British physicist; born in Dublin, Ireland, Oct. 14, 1788. He obtained a commission in the artillery in his 16th year, and accompanied Ross and Parry as astronomer in the expeditions of 1819-1820 in search of a Northwest passage. Between 1821 and 1827 he undertook a series of voyages to places between the equator and the North Pole, making at each point pendulum and magnetic experiments of great value. Elected a Fellow of the Royal Society in 1818, he was from 1861 to 1879 its president. In 1856 he was promoted Major-General, in 1869 he was created K. C. B., retiring as general in 1874; and in 1875 he was elected a corresponding member of the French Academy. His scientific reputation rests chiefly on his labors in terrestrial magnetism, his various memoirs in the "Philosophical Transactions" and "Reports" to the British Association being to this day invaluable collections of magnetic facts. By his personal influence he did more than any other single man in inducing the government to establish magnetic

observatories in different parts of the world, and in initiating the valuable magnetic work now carried out by the admiralty. He died in Richmond, England, June 26, 1883.

**Sabine, Lorenzo**, an American historian; born in New Lisbon, N. H., Feb. 28, 1803; settled in Massachusetts in 1849, and was made a secret agent of the United States Treasury Department in connection with United States commerce as affected by the Ashburton Treaty; and was a Whig member of Congress in 1852-1853. His publications include "The American Loyalists, or Biographical Sketches of Adherents to the British Crown in the War of the Revolution"; "Reports on the Principal Fisheries of the American Seas." Died in Boston, Mass., April 14, 1877.

**Sabines**, an ancient people of Italy, supposed to have been named from "Sabus," one of their deities. Little is known of their history. They were at war with the Romans at a very early period. A contest broke out between them 504 B. C., later a body of the Sabines migrated to Rome, where they founded a powerful settlement. The Sabines carried their ravages to the very gates of Rome, 469 B. C. On their defeat by Marcus Horatius, 449 B. C., their camp was found full of plunder obtained in the Roman territories. They were again at war with the Romans, 290 B. C., and having been vanquished, many of them were sold as slaves. The remaining citizens were admitted to the Roman franchise.



THE SABLE.

**Sable**, a digitigrade carnivorous mammal, nearly allied to the common

marten and pine marten, found chiefly in Siberia and Kamtchatka, and hunted for its fur. Its length, exclusive of the tail, is about 18 inches. Its fur, which is extremely lustrous, and hence of the very highest value, is generally brown, grayish-yellow on the throat, and with small grayish-yellow spots scattered on the sides of the neck. It is densest during winter, and owing to the mode of attachment of the hairs to the skin it may be pressed or smoothed in any direction.

**Sable Island**, a low-lying island in the Atlantic; 110 miles E. of the central part of Nova Scotia (and not near Cape Sable, at the S. E. corner of Nova Scotia, where there is also a Sable Island). It consists of two parallel sand ridges. The island is dangerous to navigation, and has so frequently been the scene of wrecks, as to be called the "sailor's grave." The Canadian government maintains two lighthouses here. The island is gradually sinking. Early in the 19th century it was 40 miles long; in 1890 it was reduced to 20 miles.

**Sabotage**, a term derived from the French *sabot*, a heavy wooden shoe, used by striking weavers at Lyons in 1834; first used in its present sense in France in 1897, and adopted in the United States by the INDUSTRIAL WORKERS OF THE WORLD (*q. v.*) as the first resort in enforcing labor demands. In brief, sabotage is a method of direct action pursued by dissatisfied workers in an industrial plant while "keeping on the job," and comprises every possible operation, personal and material, that can reduce the efficiency of the plant.

**Saccharin**, an artificial sugar prepared from coal-tar, first introduced to commerce in 1887 by its discoverer, Dr. Constantin Fahlberg of Salbke (Germany).

**Saccopharynx**, a genus of Murænidæ, with a single species, deep-sea conger eel, of which but few specimens have been observed. It inhabits the depths of the Atlantic, is perfectly black, and about 9 feet long. It has a large pouch-like head and pharynx, hence its name.

**Sachs, Hans**, the most distinguished meistersinger of Germany in the 16th century, born in Nuremberg, Germany, Nov. 5, 1494. He learned

the trade of a shoemaker, commenced business in his native city, married (1519), and prospered. He took lessons under one of the chief meistersingers of Nuremberg, made verses himself. As a staunch follower of Luther, and an ardent advocate of his teachings, Sachs succeeded in imparting to his hymns a fervor which considerably aided the spread of the Reformation. He died in Nuremberg, Jan. 19, 1576.

**Sack**, formerly a general name for the different sorts of dry wines, extensively used in England in the 16th century. Also a term applied to the plundering of a town or city.

**Sack Tree**, a stately forest tree, growing on the Western Ghats, etc. Bags are manufactured from it. A branch is cut corresponding to the length and diameter of the sack required. After being soaked it is beaten with clubs till the bark separates from the wood. The sack formed of the bark is turned inside out, and pulled down while the wood is sawed off, a small piece, however, being left to form the bottom.

**Sackville-West, Sir Lionel Sackville**, an English diplomatist; born July 19, 1827; was British minister to the United States in 1881-1888. He received his passports from President Cleveland for having written a letter during the presidential campaign in which he advised a vote for the Democratic ticket as conducting to British interests, in answer to a correspondent who represented himself to be a naturalized English citizen desiring political advice. D. 1908.

**Saco, Jose Antonio**, a Cuban historical writer and publicist; born in Bayamo, Cuba, May 7, 1797. He died in Madrid, Sept. 26, 1879.

**Sacrament**, the military oath taken by every Roman soldier, pledging him to obey his commander and not to desert his standard.

In Protestant theology, the Protestant Episcopal Church in the United States and the Church of England define a sacrament as "an outward and visible sign of an inward and spiritual grace given unto us, ordained by Christ Himself, as a means whereby we receive the same and a pledge to assure us thereof." They recognize two only

as incumbent on all Christians, Baptism, and the Supper of the Lord.

In Roman Catholic theology, a visible sign, instituted by Christ, which confers by the performance of the act sanctifying grace on man. The Council of Trent defines that the Sacraments of the New Law were instituted by our Lord, and are neither more nor fewer than seven in number: Baptism, confirmation, eucharist, penance, extreme unction, holy orders, and matrimony. The first five are necessary for all Christians, the last two only for the persons concerned.

**Sacramental**, in Roman Catholic theology, a name given to rites which bear some outward resemblance to the sacraments, but which are not of divine institution. They are: the prayers of the Church; holy water, blessed ashes, palms and candles, blessed bread; the general confession in the mass and office; almsgiving, and the blessings of bishops and abbots.

**Sacramento**, a city, capital of the State of California; at the confluence of the Sacramento and American rivers, at the head of low water navigation, 96 miles N. E. of San Francisco. It is built on a broad, low plain and has strong levees as a protection against floods. It has a semi-tropical climate and vegetation is most luxuriant. There are a number of National and State banks.

The streets are well laid out, and mostly lighted by electricity. The State capitol stands in a beautiful plaza covering 30 acres. Within the plaza are the State printing office and the Exposition Building of the State Agricultural Society. In the latter the resources of the State are annually exhibited.

Capt. John A. Sutter built a fort here in 1839, which he called New Helvetia, but the city was not settled till 1848, after the discovery of gold. The first house was built in 1849. Sacramento was made the State capitol in 1854, and received its city charter in 1863. It has suffered severely twice from fire and twice from inundation. Pop. (1930) 93,750.

**Sacred Heart**, in the Roman Church, the physical heart of Christ, considered, not as mere flesh, but as united to the divinity. It is the object of a special devotion, founded

in the latter part of the 17th century by a French nun. The feast of the Sacred Heart is celebrated on the Friday (in England on the Sunday) after the octave of Corpus Christi.

**Sacred War**, a war about sacred places or about religion. Four sacred wars were waged in Greece (595-338 B. C.) chiefly for the defense of the temple of Delphi and the sacred territory surrounding it. A Mohammedan war for the faith is called a Jihad. The Crusades and the wars of the Reformation were sacred wars. The quarrel which led to the Crimean War was at first a dispute between Russia and France about sacred spots at Jerusalem. When Russia fights she uniformly gives out that it is a holy war.

**Sacrifice**, the offering of anything to God or to any deity. Also that which is sacrificed, offered, or consecrated to God or to any deity or divinity; an immolated victim, or an offering of any kind, laid on an altar or otherwise religiously presented by way of thanksgiving, atonement, or conciliation. Sacrifices form an important part of all early forms of religion.

In theology, the evangelical doctrine is that the sacrifices of the older economy were types and shadows of the atoning sacrifice made by Christ. It is held that when Jesus died, His sacrifice once for all satisfied Divine justice, and no other was requisite, or would, if offered, be accepted.

**Sacrilege**, in a general sense, the violation or profaning of sacred things; more strictly the alienating to laymen, or common purposes, what was given to religious persons and pious uses. Church robbery, or the taking things out of a holy place is sacrilege.

**Sacrum**, in anatomy, the bony structure which forms the basis or inferior extremity of the vertebral column. The human sacrum forms the back part of the pelvis, is roughly triangular in shape, consists of five united vertebrae, and from its solidity it is well adapted to serve as the keystone of the pelvic arch, being wedged in between and articulating with the haunch-bones. In most mammals the number of vertebrae forming the sacrum is smaller than in man. In birds the lowest number is about 10. Fishes



possess no sacrum at all. The sacrum in man is fully ossified and completed in development from the 25th to the 30th year of life, but the component parts can generally be perceived.

**Sacy, Antoine Isaac, Baron Silvestre de**, a celebrated French orientalist; born in 1758; died 1838.

**Sadducees**, one of the three Jewish sects. The current tradition, is that the Sadducees derived their name from a certain Zadok, a disciple of Antigonus of Soko (200-170 B. C.). In the opinion of others, the Zadok from whom they derive their name was the priest who declared in favor of Solomon when the High Priest Abiathar adhered to Adonijah. His descendants had a subsequent preëminence. Not that the Sadducees became a party so early, or that Zadok was their founder; but that some of them may have been his descendants, and admired his fidelity to the government. It was their desire to be equally faithful. All the Jews admitted that the Mosaic law was given at Sinai by Jehovah. Most of the people believed that an oral law of Moses had similarly come from God. The Sadducees rejected this view, and would accept nothing beyond the written word. In the Mosaic law there is no reference to a state of rewards and punishments in a future world. When Jesus proves the resurrection from the Pentateuch, He does so by an inference, there being no direct passage which He can quote. The Sadducees denied the resurrection from the dead. Epiphanius and some other of the fathers assert that the Sadducees rejected all the Old Testament but the Pentateuch. Probably, these writers confounded the Sadducees with the Samaritans. In Acts xxiii: 8, it is stated that they say that "there is neither angel nor spirit." It is surprising that a sect with these views should, at least at one time, have almost monopolized the highest places in the priesthood; yet such was the case, at least temporarily. But, with all their sacred office and worldly rank, they had no hold on the common people. It is probable that, when Christianity spread a belief in the resurrection, the Sadducees must have still further lost ground; but they revived, and still exist, under the name of Karaites.

**Sadi**, or **Saadi**, the most celebrated didactic poet of Persia; born in Shiraz, Persia, about the end of the 12th century. In his youth he visited Hindustan, Syria, Palestine, Abyssinia, and made several pilgrimages to Mecca and Medina. While in Syria he was taken by the Crusaders, and compelled to labor as a slave at the fortifications of Tripoli. After about 50 years of wandering he returned to his native city, delighting everybody with his poems and sage precepts. He died about the end of the 13th century.

**Sadowa**, a village on the Bistritz, in Bohemia, Austria, 4 miles N. W. of Königgrätz. It is celebrated as the scene of the preliminary engagement, on July 3d, 1866, between the Austrians under Benedek, and the Prussians under Prince Frederick Charles, which culminated in the decisive battle of Königgrätz and the Austrian defeat.

**Sadtler, Samuel Philip**, an American chemist; born in Pine Grove, Pa., July 18, 1847; was graduated at Pennsylvania College in 1867, and at the Lawrence Scientific School, Harvard University, in 1870. He was a member of the committee of revision of the "United States Pharmacopœia," and edited the chemical articles in the American reprint of the "Encyclopedia Britannica," and the 15th, 16th, 17th, and 18th editions of the "United States Dispensatory."

**Sæmund the Learned**, an Icelandic scholar of the 12th century. He traveled widely in pursuit of learning, visiting Paris and Rome, and afterward was a priest at Oddi. He was unknown to scholars till about 1643, when the then newly discovered "Elder Edda" was ascribed to him. Sæmund had in his day a great reputation for learning and was also regarded as a magician.

**Safed**, one of the four holy cities of the modern Jews in Palestine; in horseshoe shape round a hill 2,700 feet above the Mediterranean; 6 miles N. W. of the Sea of Galilee. The Jewish colony has been settled here since the 16th century, and embraces many immigrants from Poland.

**Safflower**, or **Bastard Saffron** (*Carthamus tinctorius*), a large thistle-like plant with orange-colored flowers, cultivated in China, India,

Egypt, and in the S. of Europe. An oil is expressed from the seeds, which is used as a lamp oil. The dried flowers afford two coloring matters, a yellow and a red, the latter being that for which they are most valued. They are chiefly used for dyeing silk. Mixed with finely-powdered talc, safflower forms a common variety of rouge.

**Safford, James Merrill**, an American geologist; born in Zanesville, O., Aug. 13, 1822; was graduated at the Ohio State University in 1844; was State geologist of Tennessee in 1854-1860; was reappointed in 1871; and accepted the chair of natural science at Vanderbilt University in 1875. He died in 1907.

**Saffron**, in botany, a species of the *Crocus* with light purple flowers



SAFFRON:  
CROCUS SATIVUS.

which come out in autumn. It grows in the S. of Europe and in parts of Asia. The Spanish variety is the best for commercial purposes, though it is said that 100,000 flowers are necessary to produce one pound of saffron. They have an orange or brownish-red color, yellow in the narrower part, and an agreeable aromatic odor.

**Sagapenum**, a fetid gum-resin brought from Persia and Alexandria, and generally believed to be furnished by some species of the genus *Ferula*. It occurs either in tears or irregular masses of a dirty brownish color, containing in the interior white or yellowish grains. It has an odor of garlic, and a hot, acrid, slightly bitter taste. Occasionally used in medicine.

**Sagard, Theodat Gabriel**, a not-

ed French missionary to the Huron Indians in the 17th century. He wrote: "Travels to the Huron country, situate in America, toward the Freshwater sea and the uttermost limits of New France, called Canada; wherein is treated of all matters touching the country, the manners and character of the savages, their government and their ways, as well in their own country as when roaming; of their faith and belief; with a dictionary of the Huron language."

**Sagasta, Praxedes Mateo**, a Spanish statesman; born in Torrecilla, July 21, 1827; became an engineer, but taking part in insurrections had twice to flee for a time to France. He had a place in Prim's cabinet (1868); supported Amadeus; held office under Serrano; and under the new monarchy became leader of the Liberals, being premier 1897-1899, thus conducting public affairs during the Spanish-American War. Died Jan. 15, 1903.



SAGE.  
a, flower.

**Sage**, a plant much used for flavoring meats, etc. It has blue flowers, and has run into many varieties. The Chinese use it as a tonic for debility of the stomach and nerves.

**Sage, Henry Williams**, an American philanthropist; born in Middletown, Conn., Jan. 31, 1814; became interested in the lumber regions of Canada and the West, where he bought large tracts of timber and became one of the most extensive land owners in Michigan. He was elected to the Legislature in 1847 and subsequently associated himself with many philanthropic schemes. He was elected a trustee of Cornell University in 1870. He died in Ithaca, N. Y., Sept. 17, 1897.

**Sage, Russell**, capitalist, born in Shenandoah, Oneida county, N. Y., Aug. 4, 1816. Attended school winters; began as an errand boy in a grocery store, became a retail and then a wholesale grocer, and was meantime alderman, treasurer of Rensselaer county, and member of Congress; removed to New York in 1863, and entered Wall street, where he amassed a fortune of \$80,000,000, chiefly in railroads. He died July 22, 1906.

His widow, **MARGARET OLIVIA SLOCUM SAGE**, born in Syracuse, N. Y., Sept. 8, 1828, spent several years in teaching, married Mr. Sage in 1869, and after his death made large gifts for various purposes, disposing of \$16,000,000 within three years. Her largest benefactions were \$10,000,000 to the Sage Foundation, for improving social and living conditions, and \$1,000,000 each to the Rensselaer Polytechnic Institute and the Emma Willard School, Troy, N. Y. D., 1918.

**Sageretia**, in botany, a small shrub, often thorny, with slender, half-climbing branches, and black or dark-brown fruit; growing in China, the Himalayas, and the Salt and Suleiman ranges; its leaves are used as a substitute for tea, and its fruit is eaten in China and India.

**Sages of Greece, Seven.** Solon, Chilo, Pittacus, Bias, Periander, Cleobulus, and Thales are those most generally named as the seven wise men of Greece. Solon was compelled to engage in commercial adventures, and the celebrated law-giver sought foreign shores. His work on returning to Athens was that of a patriot, who sought earnestly to compose the distractions, social and political, which then rent the city. His motto was,

E-67

"Know thyself." Chilo was a Spartan, who early directed his attention to public affairs, and many of whose maxims are quoted by the ancient writers; one of the most famous of these was, "Consider the end." Pittacus was a native of Mitylene, in Lesbos, became a soldier, rose to supreme power in the State, acted with great patriotism, placed severe restrictions on drunkenness, and having done much for the people, voluntarily resigned his power. "Know thy opportunity," is attributed to him. Bias, a native of Ionia, was a poetical philosopher, who studied the laws of his country. Said Bias: "Most men are bad." Periander was distinguished for his love of science and literature, which entitled him to be ranked among the seven wise men of Greece. Of Cleobulus, of the island of Rhodes, but little is known. His favorite maxim was, "Moderation is best." Thales, a celebrated philosopher, born at Miletus, and founder of the Ionic sect, traveled like Solon in quest of knowledge, and learned geometry, philosophy, and astronomy. He is said also to have invented several fundamental propositions which were afterward incorporated into the elements of Euclid. He approached so near to the knowledge of the true length of the solar revolutions that he corrected the Greek calendar year to contain 365 days.

**Saghalien.** See SAKHALIN.

**Saginaw**, city; capital of Saginaw Co., Mich., on the Saginaw River, at the head of navigation, 100 miles N. W. of Detroit. It is the railroad center and commercial metropolis of northern Michigan, and one of the largest lumber manufacturing cities in the States; annual products, over \$12,000,000. Pop. (1930) 80,715.

**Sagittarius** (the archer), in astronomy, the ninth sign of the zodiac, into which the sun enters Nov. 22. The constellation consists of eight visible stars. It is represented on celestial globes and charts by the figure of a centaur in the act of shooting an arrow from his bow.

**Sagittate**, in botany, a term applied to the form of leaf shaped like the head of an arrow; triangular, hollowed at the base, with angles at the hinder part.

**Sagittated Calamary**, in zoölogy, a free swimming marine worm, used for bait in the cod-fishery on the banks of Newfoundland.

**Sago**, a nutritive farinaceous substance obtained from the pith of several species of palms.

**Sago Starch**, the starch extracted from the stem of *Sagrus rumphii*, and probably of other species of palm. Sago is largely used in the manufacture of the so-called soluble cocoas, and is also frequently added to the cheaper varieties of arrow root.

**Sagoin**, or **Sagouin**, the native South American name of Brazilian monkeys of small size, and remarkably light, active, and graceful in their movements.

**Saguenay**, a river of Canada; province of Quebec; formed by two outlets of Lake St. John, which unite about 9 miles below the lake, from which point the river flows S. E., and falls into the St. Lawrence at Tadoussac Harbor; length about 100 miles. For many miles of the latter part of its course the banks are very lofty, and in some parts there are precipices more than 1,000 feet high. Ships moor at rings fixed into some of the precipitous walls of rock, the water being so deep as to be unsuitable for anchorage. The Saguenay is navigable for vessels of any size to Ha Ha Bay, a distance of about 50 miles to 60 miles from the St. Lawrence, and at high-water for vessels of large dimensions from 15 miles to 18 miles farther. It is visited by many tourists.

**Saguntum**, formerly a town in Spain south of the Ebro, about three miles from the coast. It is famous in Roman history; its siege by Hannibal in 219-218 B. C. having given rise to the second Punic War.

**Sahara** (Arabic Sah'ra), the vast desert region of North Africa, stretching from the Atlantic to the Nile, and from the S. confines of Morocco, Algeria, Tunis, and Tripoli S. to the vicinity of the Niger and Lake Tchad. It is usual to regard the Libyan Desert, lying between Egypt, the Central Sudan, and Tripoli, as a separate division. It was long customary to assert that the Sahara was the bed of an ancient inland sea. Since the French became masters of Algeria,

they have completely revolutionized our knowledge. The surface, instead of being uniform and depressed below sea-level, is highly diversified, and attains in one place an altitude of fully 8,000 feet. There are still several extensive tracts as to which we have next to no information.

From the neighborhood of Cape Blanco in the W. a vast bow or semi-circle of sand dunes stretches round the N. side of the Sahara to Fezzan, skirting the Atlas Mountains and the mountains of Algeria. This long belt of sand hills varies in width from 50 to 300 miles, called Erg. The hills rise 300 feet though the average elevation is about 70 feet. They are composed of pure quartz sand, stationary in character, though constantly changing their outward form and configuration; and lie as a rule in parallel chains. Water is nearly always to be found below the surface in the hollows between the different chains and a few dry plants struggle to maintain a miserable existence. S. of Algeria, on the other side of the Erg, the country rises into the lofty plateau of Ahaggar (4,000 feet), which fills all the middle parts of the Sahara. Its surface runs up into veritable mountains 6,500 feet high, which are covered with snow for three months in the year. On the S. it falls again toward the basins of the Niger and Lake Tchad; there are mountain ranges along the E. side reaching 8,000 feet in Mount Tusidde in the Tibbu country, and a mountain knot in the oasis of Air, which reaches 6,500 feet. Mountainous tracts occur also in the W., between Morocco and Timbuctoo, but of inferior elevation (2,000 feet). These mountainous parts embrace many deep valleys, most of them seamed with the dry beds of ancient rivers, as the Igharghar and the Mya. These valleys always yield an abundance of water, if not on the surface in the watercourses, then a short distance below it, and are mostly inhabited, and grazed by the cattle and sheep and camels of the natives.

Another characteristic type of Saharan landscape is a low plateau strewn with rough blocks of granite and other rocks, and perfectly barren. These elevated stone fields—called "hammada"—alternate with tracts of bare flat sand, with broad marshes, where water has stood and evaporated,

leaving salt behind it, and with extensive tracts of small, polished, smoothly-rounded stones. In many parts of the Sahara, especially in the valleys of the mountainous parts, in the recesses or bays at the foot of the hills, alongside the water-courses, and in the hollows of the sand dunes, in all which localities water is wont to exist, there are oases—habitable, cultivable spots, islands of verdure in the midst of the ocean of desert. These oases mark the caravan routes between the Central Sudan States and the Mediterranean.

The Romans had colonies of military posts a long way S., in what are now desert regions; and both Herodotus and Pliny tell us that the elephant, the rhinoceros, and the crocodile, all animals that only live near abundant supplies of water, were common throughout North Africa in their day. None of the Egyptian inscriptions or animal sculptures represent the camel, nor do the Greek and Roman historians mention it either as being a denizen of North Africa. The camel is now the principal carrier across the Sahara, and must have been introduced since the beginning of the Christian era.

The terrors of the desert sand storm have often been described. Thick deposits of Sahara quartz sand dust were discovered by the "Challenger" on the floor of the Atlantic a long way W. of the African coast. The sand in the dunes is so dry that in several places the tread of a camel or man will make the hill hum, or even thunder, as a vast quantity of it slips down to a lower level. The range of temperature is exceedingly great; often the thermometer falls from considerably more than 100° F. during the day to just below freezing-point at night. In the W. of the Sahara the daily average is 85° in the shade in the month of May. Rain falls in parts of the Sahara, but in most districts after intervals of two to five years. After a fall of rain it is not unusual to see the river beds in the mountainous regions filled with foaming torrents. The atmosphere is so dry and clear that objects can be seen and sounds heard at a vast distance. Owing to the extreme dryness of the air, the Sahara is very healthy.

The plant life is very rich in the oases, the date palm, which has its home in these regions, being the principal ornament as well as the most valuable possession of these fertile spots. In the desert regions the plant life is confined principally to tamarisks, prickly acacias and similar thorny shrubs and trees, salsolaceae, and coarse grasses. The animals most commonly met with include the giraffe, two or three kinds of antelope, wild cattle, the wild ass, desert fox, jackal, hare, lion, ostrich, desert lark, crow, viper, python, locusts, flies. The people keep as domestic animals the camel, horse, ox, sheep, and goat.

The human inhabitants, who are estimated altogether at between 1,500,000 and 2,500,000, consist of Moors, Tuareg, Tibbu, Negroes, Arabs, and Jews. The Tuareg are great traders and control the principal caravan routes. The Tibbu, who number about 200,000, and are regarded as being ethnically intermediate between the Berbers and the Negroes, occupy the oases between Fezzan and Lake Tchad. The Arabs of pure stock are very few.

The boring of artesian wells, and with the water so obtained irrigating the soil in the vicinity, was apparently known to the ancients, and has been prosecuted by the French with great energy since 1856. By 1890 they had made a string of these wells from the cultivated districts of Algeria as far as Tugurt, on the edge of the desert S. of Biskra. Water is generally found at depths varying from 10 to 300 feet, in great abundance, and around them date palm groves and orchards support agricultural communities. A telegraph line across the desert S. to Timbuktu was opened in 1906.

**Saiga**, in zoölogy, an antelope found in Eastern Europe and Western Asia.

**Saigo Takamori**, a Japanese general; born in 1826; died in 1877. He was prominent in the Civil War of 1868 to overthrow the Shogunate, and became commander-in-chief of the army. Dissatisfied with the reform movement, he raised a rebellion in 1877, but was defeated and killed. His brother SAIGO TSUKUMICHI; born in 1843, commanded the Formosa expedition in 1874, and became a general and cabinet officer.



## St. Albans

**St. Albans**, city and capital of Franklin county, Vt.; near Lake Champlain and on the Central Vermont railroad; 30 miles N. by E. of Burlington; commands a fine view of Lake Champlain and the Adirondack and Green Mountains; contains large railroad shops, creameries, and manufacturing of farm implements and clothing; has the St. Albans Academy, Warner Home for Little Wanderers, Warner Hospital, Franklin Library, and Vila Barlow Convent; was raided by Confederates in 1864; and was a Fenian headquarters in 1866. Pop. (1930) 8,020.

**St. Andrews**, a town of Scotland; on a rocky plateau at the edge of St. Andrews Bay. 42 miles N. N. E. of Edinburgh. From the number and nature of the remains of ancient burial found in and around the city there can be little doubt that there was a settlement here in prehistoric times. The monkish legend, assigned its ecclesiastical origin to St. Regulus, who brought bones of St. Andrew from Patras in the 4th century, and was wrecked at Muckros, now St. Andrews. There is reason for believing not only that those relics were brought in the 8th century, but that before the end of the 6th, Cainnech, the patron saint of Kilkenny, had founded a monastery at Rig-Monadh, the Royal Mount. Early in the 10th century it became the seat of the high bishop of the Scotch. The Augustinian Priory, founded in 1144, was the richest and greatest of all the religious houses of Scotland. The cathedral, founded about 1160, and consecrated in 1318, was stripped of its images and ornaments in 1559, and afterward fell into ruin. The extreme length inside is 355 feet. The bishop's palace or castle, first built in 1200, was frequently demolished and rebuilt, and is now a ruin. George Wishart and other martyrs were confined in its dungeon, and Cardinal Beaton was slain within its walls. St. Rule's Tower has probably occasioned more discussion and perplexed more archeologists than any other building in Scotland. Its arches, as well as that of its roofless chapel, approach the horseshoe in form. Of the Black Friars Monastery a portion of the chapel remains; but of the Grey

## St. Bartholomew

Friars almost nothing. The schools of St. Andrews were noted in 1120; but the university, the first in Scotland, only dates from 1411. The town was erected into a free burgh between 1144 and 1153. The manufacture of golf clubs and balls is naturally a thriving industry, St. Andrews being known all over the world as the headquarters of golf. It is a popular watering place and summer resort.

**St. Augustine**, a city, port of entry, and county-seat of St. John co., Florida; on the Matanzas river, near the Atlantic Ocean; 36 miles S. of Jacksonville. It occupies a peninsula formed by the Matanzas river on the E. and the St. Sebastian river on the S. and W. Directly in front is Anastasia Island, forming a breakwater. The city is principally a winter resort. The climate is mild and equable. St. Augustine is the oldest town in the United States, a fort having been built here by the Spaniards in 1565. As early as 1512 Ponce de Leon landed near the site of the city. In 1763 it became a British possession, and during the Revolutionary War was an important military depot. Later it again passed into the hands of Spain, and was ceded to the United States in 1821. Pop. (1930) 12,111.

**St. Bartholomew, or St. Barthelemy**, a French West Indian island, 190 miles E. of Porto Rico; area, 8 square miles. The treeless surface rises to 1,003 feet; the climate is very dry. French from 1648 till 1784, the island then was Swedish till 1877, when it was bought back by France for \$80,000.

**St. Bartholomew, Massacre of**, a massacre of the Huguenots which took place in Paris, France, beginning on the night of Aug. 23-24 (St. Bartholomew's day), 1572. A large number of prominent Huguenots had been invited to the royal palace to participate in the wedding festivities of Henry of Navarre. While these guests were in the palace they were slaughtered without mercy, and at a signal the massacre quickly spread over the city. The anti-Huguenot leaders were Charles IX., the queen-mother Catherine de Medici, and the Duke of Guise. The massacre spread over France and about 30,000 lives were lost. A religious war followed.

**St. Bernard Dog, Great**, a species of dog which gets its name from the Hospice of St. Bernard, where it has long been kept by the monks to aid them in rescuing perishing travelers. This famous dog, according to the traditions of the monastery, is the result of a cross between a Danish bull-bitch and a mastiff, a native hill dog. Many of the finest St. Bernards measure over 30 inches high at the shoulder and weigh over 150 pounds. On account of his great size and weight, the St. Bernard often moves in an awkward manner, a defect which should be avoided. St. Bernards, though occupying a great deal of space, are so handsome that they are kept as companions in great numbers; as a rule they are good tempered, though many are not to be trusted.

**St. Catharines**, a city and capital of Lincoln co., Ontario, Canada, on the Welland canal and several railroads; 12 miles N. W. of Niagara Falls. It is the center of the fruit trade of Ontario; has several fine mineral springs; and contains Bishop Ridley College, a Collegiate Institute, General and Marine Hospitals, and numerous industrial plants. Pop. (1930 Est.) 26,000.

**St. Charles**, a city and county-seat of St. Charles co., Mo.; on the Missouri river and several railroads, 22 miles W. of St. Louis. It is in a very productive limestone region, is noted for its numerous educational institutions and the \$1,750,000 railroad bridge across the river, and has important manufactures. Pop. (1930) 10,491.

**St. Christopher**. See **CHRISTOPHER**.

**St. Clair**, a lake in North America, between Lake Huron and Lake Erie, and connected with the former by St. Clair River, with the latter by Detroit River. It is 30 miles long, greatest breadth 24 miles; area, 360 square miles. Its elevation above the sea-level is 576 feet, being 6 feet lower than Lake Huron.

**St. Clair, Arthur**, an American military officer; born in Thurso, Scotland, in 1734. He was at Louisburg in 1758 and Quebec in 1759; engaged in the battles of Trenton and Princeton; was in command in 1777 at Tippecanoe; was at the battle of York-

town; president of Congress in 1787; governor of Northwest Territory in 1789-1802. The expeditionary force against the Miami Indians, numbering 1,400, commanded by him, was cut to pieces near Miami village in 1791. He resigned his command in 1792, and died near Greensburg, Pa., Aug. 31, 1818.

**St. Clair River**, the outlet of Lake Huron; is 41 miles long, and flows south on the boundary between Michigan and Ontario. A tunnel was built under it in 1891.

**St. Cloud, France**. See **CLOUD, ST. CLOUD**, city and capital of Stearns Co., Minn., on the Mississippi, 65 miles N. W. of Minneapolis. It has large granite and agricultural interests. Pop. (1930) 21,000.

**St. Croix**, an affluent of the Mississippi, formerly part of the boundary between Minnesota and Wisconsin. Length 200 miles.

**St. Croix**, a West Indian island, now of the United States, 40 miles S. S. E. of St. Thomas; area, 84 square miles; pop. 15,467; discovered by Columbus. The sale of the island with the entire Danish West Indian group to United States was made in 1917.

**St. Outhbert**, an English bishop; born near Melrose, England, early in the 7th century. He was successively prior of the monasteries of Melrose and Lindisfarne, retired afterward to the lone and desolate isle of Farne, where he might enjoy a life of solitude. He finally yielded to the persuasion of the Northumbrian king, Oswy, and took the bishopric of the province of Lindisfarne. He held this office for two years, when, worn out by labors and austerities, he died in the island of Farne, March 20, 687.

**St. Cyril of Alexandria**, an Egyptian bishop; born in Alexandria, Egypt, about 376. He succeeded his uncle Theophilus as Bishop of Alexandria in 412. He compelled the Novatians to silence, banished the Jews, and caused Nestorius to be condemned and deposed. A subsequent council favoring Nestorius, excommunicated and deposed his opponent. The emperor condemned both sides, and ordered the rival champions to be imprisoned. The intercession of Rome caused this sentence against Cyril to

be abrogated. He died in Alexandria in June, 444.

**St. Cyril of Jerusalem**, a Church father; born in or near Jerusalem, Palestine, about 315. He was elected bishop of his native city in 351. Died in 386.

**St. Denis.** See DENIS.

**St. Die**, a town of France, Department of Vosges, on the Meurthe river, equi-distant from Mulhausen and Strassburg, N. W. of the former and S. W. of the latter; equi-distant from Belfort and Nancy, N. of the former and S. E. of the latter; between 40 and 45 miles from each of these cities. It forms one of the French outposts between the frontier and the fortresses at Toul and Epinal, and is an important industrial city with a population largely of Alsatian refugees. Pop. about 17,000.

**St. Dizier**, a town of N. E. France, Department of Haute-Marne, 58 miles N. E. of Troyes, 55 miles from the Lorraine border, on the Marne river and the Haute-Marne canal. It dates from the 3d century, sustained a memorable siege against Charles V. in 1544, is an important iron center with considerable trade in grain and lumber, and was in the zone of operations in the World War. Pop. (1921) 15,000.

**Sainte-Beuve, Charles Augustin**, a French writer, and one of the greatest of modern critics; born in Boulogne, France, in 1804. In 1840 he was appointed conservator of the Mazarin Library, and in 1845 admitted a member of the French Academy. In 1852 he was appointed Professor of Latin Poetry in the College of France. He died in 1869.

**Sainte-Claire, Deville, Henri, Etienne**, a French chemist; born in St. Thomas, W. I., March 11, 1818; was educated in Paris. It was he who first produced aluminum (1855) and platinum in commercial quantities. He died in Paris, July 1, 1881.

**Sainte Marie-aux-Mines, or Markirch**, a town of Germany, in Upper Alsace, in a valley on both sides of the river Leber, 40 miles S. W. of Strassburg. Its silver mines, famous in the Middle Ages, have been depleted. Since the 18th century the town has been celebrated for its cotton and woolen manufactures. Pop. 12,400.

**Saintes**, a town in the W. of France, department Charente-Inferieure, on the Charente, 27 miles S. E. of Rochefort. It has an old cathedral and interesting Roman remains. The manufactures are bombazine, earthenware, etc.; and the trade is in brandy, wool, and corn. Pop. 18,200.

**Saint-Etienne.** See ETIENNE.

**Saint Eustatius.** See EUSTATIUS.

**Saint-Evremond, Charles Marguetel de Saint-Denis, Seigneur de**, a French writer; born in 1613; died 1703. At sixteen he entered the army, took part in many of the campaigns of the period, and rose to the rank of field-marshal, but gained his chief laurels in the salon of Ninon de l'Enclos as a brilliant conversationist and a graceful wit. He was a staunch royalist, but, compromised by the disgrace of Fouquet, and afraid of Mazarin, he fled to England in 1661, and was welcomed and pensioned by Charles II. He was buried in Westminster Abbey.

**Saint Gaudens, Augustus**, an American sculptor; born in Dublin, Ireland, March 1, 1848; came to the United States in infancy; studied art at Cooper Institute, New York city; at the National Academy of Design, and at Paris, where he attended the Ecole des Beaux Arts. In 1871, while in Rome he produced his first figure, "Hiawatha," but returned to the United States in 1872. He designed the Medal of Award of the Columbian Exposition, and the new gold coins and one cent piece. He died Aug. 3, 1907.

**St. Gobain**, a town of N. France, Department of Aisne; 10 miles W. of Laon; noted for its manufactures of the largest mirrors in the world. The French Government owns large tracts of land around and beyond the town, the remnant of the "Sylvacum" through which Agrippa opened a great passage connecting Rome with the English Channel. Pop. about 4,000.

**St. Gotthard**, a mountain knot of the Alps, in the Swiss cantons of Uri, Grisons, Ticino, and Valais, 9,850 feet high. It bears one of the most celebrated of the Alpine passes from Switzerland to Italy. The road that crosses this pass (6,936 feet) leads from the shores of Lake Lucerne to

## St. Helena

the shores of Lago Maggiore; but down to 1820 it was not wider than 13 feet. In 1820-1824 it was widened to 18 feet and smoothed for carriages. Near the summit of the pass stand two hotels and a hospice. Since 1882 a railway has climbed up the lower slopes, and then burrowed through it in a tunnel. This tunnel was begun in 1872 and finished in 1880; it extends from Goschenen (at a height of 3,639 feet) in Uri to Airola (3,757 feet) in Ticino, measures  $9\frac{1}{4}$  miles in length, is 26 feet wide, and 21 high, rises with a gradient that reaches on an average 26 in 100 feet, and cost \$11,350,000 to make.

**St. Helena**, a lonely island in the Atlantic, 1,200 miles from the W. coast of Africa, 1,695 from Cape Town, and 4,477 from Southampton; length, 10 miles; width, 8 miles; area, 47 square miles. It is part of an old volcano and reaches 2,823 feet in High Hill. Jamestown, the capital, on the N. W. coast, is a second-class imperial coaling station, and fortified. St. Helena was discovered by the Portuguese in 1502, and taken possession of by the British in 1651. It is celebrated as the place of Napoleon's imprisonment from 1815 to his death in 1821. In 1900 it was again prominent as a place of captivity, Boer prisoners including Cronje (q. v.) being sent there.

**St. Henri**, a city in Hochelaga county, Quebec, Canada; on the Lachine canal and the Grand Trunk railway; 2 miles S. W. of Montreal, with which it has many business interests in common; manufactures cotton goods, leather, iron, wire, pipe, sewing-machines, and shoes.

**St. James's Palace**, a palace in London, England. Originally a hospital dedicated to St. James, it was reconstructed and made a manor by Henry VIII., who also annexed to it a park, which he enclosed with a brick wall, to connect St. James's with Whitehall. Here Queen Mary died (1558); Charles I. slept here the night before his execution; and here Charles II., the Old Pretender, and George IV. were born. When Whitehall was burned in 1697, St. James's became the regular London residence of the British sovereigns, and it continued to be so till Queen Victoria's

## St. Joseph

time. The Court of St. James's is a frequent designation of the British court.

**St. John**, city and port of Canada, province New Brunswick, capital of St. John Co., at the mouth of the St. John River which here enters the Bay of Fundy. St. John is the great commercial emporium of New Brunswick, and has a great trade in lumber, important fisheries, and a variety of industries. Pop. (1921) 47,166.

**St. John, Charles Edward**, an American physicist; born in Allen, Mich., March 15, 1857; was graduated at the Michigan Normal College in 1876, and studied physics abroad; was instructor of physics at the Michigan Normal College, Ypsilanti, in 1885-92; professor of physics and astronomy at Oberlin College in 1899-1908; then became astronomer at Mt. Wilson Solar Observatory of the Carnegie Institution.

**St. John, John Pierce**, an American lawyer; born in Brookville, Ind., Feb. 25, 1833; received a common school education; entered the Union army during the Civil War and served as captain and lieutenant-colonel; removed to Kansas after the war and was elected to the Senate of that State in 1872; was governor of Kansas in 1879-1883. He was a candidate for President of the United States on the Prohibition ticket in 1884. He later became independent in politics.

**St. John's**, capital of Newfoundland; on Avalon Peninsula in the S. E. It is attractively situated at the inner end of a capacious harbor, and is protected by several strong batteries and forts. Cod and seal oils are produced and exported on a large scale. In 1892 a terrible conflagration destroyed nearly two-thirds of the town. Pop. (1919) 34,045.

**St. John's College**, an educational non-sectarian institution in Annapolis, Md.; founded in 1789.

**St. John's College**, former name of Fordham University, New York City, founded in 1841 under the auspices of the Roman Catholic Church.

**St. Joseph**, a city and county-seat of Buchanan co., Mo.; on the Missouri river; 60 miles N. W. of Kansas City. It is the third city in the State in population and is one of the wealthiest cities of its size in the United States.

In 1926 it was reported that there were 154 manufacturing plants employing 5,610 wage earners, and paying \$6,262,394 for wages and \$30,893,356 for raw materials and yielding a combined output valued at \$46,320,121.

The city has an area of square miles. The sewer system covers 97 miles, and the streets are lighted by electricity. There is a public school enrollment of 11,853 pupils. There are 28 school buildings and 427 teachers. The average daily attendance is 9,088.

The heart of the city is undergoing a complete remodeling, making way for the new St. Joseph Civic Center, which will take in the New Court House, which has already been completed, the Soldiers Memorial, The Library and the Museum.

The city was established by Joseph Ribideaux in 1843; incorporated as a town in 1845; and chartered as a city in 1885. After the discovery of gold in California it became prominent as the starting point for mining parties on their way across the prairies. During the Civil War it was fortified by the Federal government. Pop. (1930) 80,935.

**Saint-Just, Antoine Louis Leon Florelle de**, a French revolutionist; born in 1767. He adopted with enthusiasm the principles of the Revolution, became the right hand of Robespierre, and was one of the most energetic and resolute members of the Mountain party. He fell with Robespierre through the events of the 9th Thermidor (July 27, 1794), and perished on the same scaffold with him on the following day, July 28, 1794.

**St. Lawrence**, a river of North America, forming in its upper reaches part of the N. boundary of the United States, but for the most part confined to the Canadian Dominion. It issues from Lake Ontario at Kingston, where the name begins to be applied to the river, though the remotest source of the highest feeder of its basin, the St. Louis, which enters the W. end of Lake Superior, is in the N. E. of Minnesota. Passing through the chain of Great Lakes on leaving Lake Ontario, it flows N. E., first through the beautiful district known as the Thousand Isles, from the number of islands large and small (in all about

1,500), which here vary its course, and then forms the wide expanses called Lakes St. Francis, St. Louis, and St. Peter. Below Quebec it forms a broad estuary, and it enters the Gulf of St. Lawrence by a mouth 26 miles wide, between Point des Monts and the Gaspé Peninsula. Length from Lake Ontario to the Gulf 760 miles, to the W. point of Anticosti 1,034 miles. The height of Lake Ontario above sea-level is 246.6 feet of which the river descends 206.75 feet in the 348 miles above Montreal. Since the construction of a ship canal, 27½ feet deep, through Lake St. Peter, the largest merchant vessels afloat have been able to reach Montreal in summer. In the stretches above Montreal the fall of the river bed takes place in a succession of rapids, to avoid which canals have been constructed. The basin of the St. Lawrence is estimated to contain 297,000 square miles, of which 95,000 are covered with the waters of the Great Lakes.

**St. Lawrence University**, a co-educational institution in Canton, N. Y.; founded in 1858 under the auspices of the Universalist Church.

**St. Louis**, a port of entry, and chief city of Missouri; on the W. bank of the Mississippi river, 20 miles S. of the mouth of the Missouri. It is the fourth city in the United States in population, and the commercial metropolis of the Mississippi valley. The city is built on rising ground, comprising three terraces, the highest of which is 200 feet above the level of the river; area, 61 square miles; pop. (1920) 772,897; (1930) 821,960.

The city owns an extensive water-works system, costing \$25,000,000. The consumption averages 91,000,000 gallons daily. There are over 900 miles of streets, of which 656 miles are paved.

St. Louis has a park system which constitutes one of its most attractive features. The total area of the parks is 2,764 acres. Forest Park, which comprises 1,372 acres, is the largest, and probably the most beautiful. Here is situated Washington University, which formed the nucleus around which grew the fine buildings of the Louisiana Purchase Exposition in 1904. Tower Grove Park, covering 276 acres in the S. W. part of the city, was the donation of Henry Shaw,



## St. Louis

who also gave the city the Missouri Botanical Garden. Carondelet Park and Lafayette Park are small but excellent specimens of landscape gardening.

The principal public buildings are the massive postoffice and custom house costing more than \$6,500,000; the city hall, built at a cost of \$2,000,000; the court house; the union railroad station with a train house covering 30 tracks, and used by 21 railroad companies, erected at a cost of \$6,500,000; and the Chamber of Commerce building, costing \$2,000,000.

The St. Louis bridge, a massive structure, was completed in 1874 at a cost of over \$10,000,000. It consists of three spans, the center one being 520 feet long, and the other two 500 feet each. The piers upon which these spans rest are built of limestone carried down to bed rock. The main passage for the accommodation of pedestrians is 54 feet wide, and below this are two lines of rails. The merchant's bridge, 3 miles N., was completed in 1890 at a cost of \$3,000,000. The latter is used exclusively for railroad traffic.

The favorable location of St. Louis in the heart of the vast and fertile Mississippi valley makes it one of the greatest commercial cities in the United States. There is an immense trade in breadstuffs, grain, provisions, lumber, hides, fur, agricultural products, manufactured articles, etc.

In 1926 there were reported 2,367 manufacturing plants, employing 105,022 wage earners, paying \$130,856,964 for wages, and \$513,420,676 for raw materials, and yielding a combined output valued at \$874,557,373.

A new court house has just been completed at a cost of over four million dollars. This building rises 384 feet above the level of the street, and is part of the municipal plaza of public buildings. The embellishments and furnishings will cost over a million dollars.

In the school year 1914-15 the public school enrollment was 97,754, of whom 79,205 were in average daily attendance. There were 143 public school buildings and 2,645 teachers. The institutions of higher education are Washington University, St. Louis University (R. C.), the College of

## St. Mark

the Christian Brothers, St. Louis School of Fine Arts, Maria Consilia Convent, Training School for Nurses, several medical colleges, dental college, theological seminaries (Luth. and Evan. Luth.), Manual Training School, the State School for the Blind, and the St. Louis Day School for Deaf Mutes.

There are upward of 400 churches in St. Louis, representing all the leading religious sects in the United States. The value of all church property, by the U. S. census report was over \$20,000,000.

On Feb. 14, 1764, Auguste Chouteau, with about 30 men, arrived at the site of the city to establish a permanent post. In 1896 the city was swept by a destructive tornado that overthrew many buildings, destroyed shipping and tore out a shore span of the great bridge. Several hundred lives were lost and many rendered homeless. To celebrate the Louisiana Purchase in 1803, the St. Louis World's Fair was held in 1904.

**St. Lucia**, the largest of the Windward Isles, in the West Indies; area, 233 sq. m.; pop. (1926) 55,698.

**St. Martin**, one of the Lesser Antilles, W. I. Since 1648 it has been divided between France and the Netherlands. The French portion, a dependency of Guadeloupe, has an area of 20 square miles and a population of 3,500. The Dutch portion, a dependency of Curacao, has an area of 17 square miles and a pop. of 4,000.

**St. Mihiel**, a town of N. E. France, Department of Meuse, on the Meuse river and the Canal de l'Est, 22 miles from the Lorraine border, 23 miles S. E. of Verdun. It formerly possessed strong fortifications and two castles which were destroyed in 1635 by the royal troops in the course of a quarrel between Louis XIII. and Charles IV., Duke of Lorraine. Pop. about 11,200.

**St. Mark, Cathedral of**, a famous cathedral in Venice facing the Square of St. Mark and containing the relics of St. Mark. It is built in the form of a cross, 250 feet long and 170 feet wide at the arms. Before it stand two gigantic bronze horses once presented to Nero and centuries later removed to Paris when Venice was sacked by Napoleon.

## St. Nicholas

**St. Nicholas**, an early bishop of Myra in Lycia, Asia Minor. He is a popular saint in the Roman and the Greek Churches. His feast day, falling on Dec. 6, was once elaborately celebrated in English public schools, the solemnities continuing to Dec. 29. It has long been a custom in certain European countries to keep St. Nicholas' Eve by placing gifts in the shoes or stockings of children. This custom has been transferred to Christmas Eve and the transformed saint is known as Santa Claus (from the Dutch *Sant Nicolaus*).

**St. Olaf College**, a coeducational institution in Northfield, Minn.; founded in 1874 under the auspices of the Lutheran Church.

**St. Paul**, one of the disciples of Christ, originally known as Saul of Tarsus, a Roman general who was sent into Damascus to persecute the Christians and bring back the leaders to the high priests. Enroute he received a vision from heaven and was converted.

**St. Paul**, a city, capital of the State of Minnesota, and county-seat of Ramsey co.; on the Mississippi river. The city is built on both sides of the river, which are connected by several bridges including a fine iron structure. The ground on both sides of the river rises in three plateaus, the highest being 200 feet. The main part of the city is on the second and third plateaus, but it also occupies the bottom lands along the river. Area 55 square miles; Pop. (1930) 271,606.

The principal public buildings are the Capitol, containing the library of the State Historical Society; the court house and city hall erected at a cost of more than \$1,000,000; custom house and postoffice. Besides these there are three free hospitals, and Protestant and Roman Catholic orphan asylums.

In 1926 it was reported that there were 630 manufacturing plants in the city of St. Paul, employing 23,664 wage earners, paying \$30,701,146 for wages and \$107,259,854 for raw materials and yielding a combined output of \$191,021,604.

In the school year of 1925-1926 the school department reported 161 schools housed in 80 school buildings and employing 1427 teachers. There were

## St. Paul's

41,837 pupils and an average daily attendance of 34,337.

The institutions for higher learning are Hamline University (Methodist Episcopal); Concordia College (Lutheran); Macalester College (Presbyterian); St. Paul's and St. Thomas' Seminaries (Roman Catholic); and several medical colleges.

The city owns its own water works, valued at over ten million dollars, and has 937 miles of streets of which 101 miles are paved.

Pierre Le Suewe and Nicholas Perrot established a temporary post in the vicinity about 1690 and Jonathan Carver, who visited the region in 1767-68, left a long description of his findings.

A French Canadian settled on the site of the city in 1838. Three years later, Father Gaultier, a French Catholic priest, founded the first church here, and named it St. Paul, from which the city derived its name. It received its charter in 1854, and united the suburb of West St. Paul in 1874. Since the latter year there has been such a rapid growth that the outskirts of the city reach those of Minneapolis. These two cities are known as "The Twin Cities of the West."

**St. Paul's**, a cathedral in London, England, situated on Ludgate Hill, an elevation on the N. bank of the Thames. The site of the present building was originally occupied by a church erected by Ethelbert, King of Kent, in 610. This was destroyed by fire in 1087, and another edifice, Old St. Paul's, was shortly afterward commenced. The structure was in the Gothic style, in the form of a Latin cross, 690 feet long, 130 feet broad, with a lead-covered wooden spire rising to the height of 520 feet. Old St. Paul's was much damaged by a fire in 1137, by lightning in 1444, again by fire in 1561, and was utterly destroyed by the great fire in 1666. The ruins remained for about eight years, when the rebuilding was taken in hand by the government of Charles II. (1675-1710). The whole building was completed at a total cost of \$7,556,010. It is of Portland stone, in the form of a cross. Its length is 510 feet; the width from N. to S. portico 282 feet; the general height is

## St. Peter's

100 feet. The whole is surmounted by a great dome raised on eight arches. Above the dome is a lantern or gallery terminated above by a ball and gilded cross, 404 feet from the pavement beneath. The elevated portico forming the grand entrance consists of 12 Corinthian columns, with an upper series of eight pillars of the Composite order, supporting a pediment; the front being flanked by two bell-towers 120 feet in height.

**St. Peter's**, the Cathedral of Rome, the largest and one of the most magnificent churches in Christendom. It is a cruciform building in the Italian style, surmounted by a lofty dome, built on the legendary site of St. Peter's martyrdom; the foundation stone was laid on the 18th of April, 1506. Michael Angelo was appointed architect in 1546. He nearly completed the dome and a large portion of the building before his decease (1564). The nave was finished in 1612, the facade and portico in 1614, and the church was dedicated by Urban VIII. Nov. 18, 1626. The interior diameter of the dome is 139 feet, the exterior diameter 195½ feet; its height from the pavement to the base of the lantern 405 feet; to the top of the cross outside 448 feet. The length of the cathedral within the walls is 613½ feet; the height of the nave near the door 152½ feet; the width 87½ feet. The floor of the cathedral covers nearly five acres. Estimated cost, over \$50,000,000.

**St. Petersburg**, the former name of the capital of the ancient Russian Empire; changed early in the World War to PETROGRAD, then to LENINGRAD; founded by Peter the Great in 1702. For convenience of reference, the name by which the city was known for more than 200 years is here preserved. The city is at the head of the Gulf of Finland and the mouth of the Neva. When a strong wind is blowing from the sea its level rises by several feet, and the poorer parts of St. Petersburg are inundated every year; but when the overflow exceeds 10 feet nearly the whole of the city is inundated. Peter I. laid the foundations of his capital in 1702 on one of the islands of the delta and dreamed to make of it a new Amsterdam. The actual connection between

## St. Petersburg

Russia and its capital was established through the Neva, which since it was connected by canals with the upper Volga, became the real mouth of the immense basin of the chief river of Russia and its numberless tributaries. Foreign trade and the centralization of all administration in the residence of the emperor have made of St. Petersburg a populous city covering 42 square miles.

The Great Neva, the chief branch of the river, which has within the city itself a width of from 400 to 700 yards, is so deep that large ships can lie alongside its granite embankments. Cronstadt, built on an island 16 miles to the W. of St. Petersburg, is both the fortress and the port of the capital. Two-thirds of the foreign vessels unload within the city itself. The main body of the city, containing more than one-half of its inhabitants as well as all the chief streets, stands on the mainland, on the left bank of the Neva; and a beautiful granite quay, with a long series of palaces and mansions, stretches for 2½ miles. Only two permanent bridges cross the Neva; the other two, built on boats, are removed in autumn and spring. The island Vasilievsky, between the Great and Little Nevas, has at its head the Stock Exchange, surrounded by spacious storehouses, and a row of scientific institutions, all facing the Neva. On the Peterburgskiy Island, between the Little Neva and the Great Neva, stands the old fortress of St. Peter and St. Paul, facing the Winter Palace, and containing the Mint and the cathedral. It has behind it the arsenal, and a series of wide streets bordered by small, mostly wooden houses, chiefly occupied by the poorer civil service functionaries. Farther up the mainland on the right bank of the Neva is covered by the poorer parts of the city, but contains some public buildings and a great number of factories. Numerous islands, separated from each other by small branches into which both Nevas subdivide, and connected together by a great number of wooden bridges, are covered with beautiful parks and summer houses, to which most of the wealthier and middle-class population repair in the summer. The main part of St. Petersburg has for its center the Old Admiral-

## St. Quentin

ty; its lofty gilded spire and the gilded dome of St. Isaac's Cathedral are among the first sights caught on approaching St. Petersburg by sea. Three streets radiate from it; the first of them is the famous Nevskiy Prospect.

The Nevskiy Prospect was one of the finest streets of the world, not so much for its houses as for its immense width and length, the crowds which overflow its broad sidewalks, and the vehicles which glide over its wooden pavement. It runs for 3,200 yards, with a width of 130 feet, and then with a slow bend toward the S. for another 1,650 yards, to reach again the Neva near the Smolyni convent.

The climate is less severe than might be expected, but it is unhealthy and very changeable on the whole. The average temperatures are 15.4° F. in January, 64° in July, and 38.6° for the year. A short but hot summer is followed by a damp autumn and very changeable winter, severe frosts being followed by rainy days in the winter, and returning in April and May after the first warm days of spring. Pop. (1926 Est.) 1,616,118.

**St. Quentin**, a town of N. France, Department of Aisne; 30 miles N. W. of Laon, 80 miles N. E. of Paris, on the Somme river and a canal that connects the river with the Scheldt and the Oise. It is the center of an important industrial district; dates back to ancient times; and, in the early history of Europe, was the crossing place of five military roads. It has had a long war history. During the Franco-Prussian War (1870-1) it repulsed a German attack, and soon afterward it was the center of a great battle in which the French were defeated. In the World War it suffered severely, being occupied by the Germans who partially ruined its famous 12th century cathedral, pillaged it, and set fire to a part of it. Pop. (1926 Est.) 65,390. See APPENDIX: *World War*.

**Saint-Saens, Charles Camille**, a French musician; born in Paris, France, Oct. 9, 1835. At the age, it is said, of two and a half years he was taught the pianoforte by his great-aunt, and at seven he had further instruction from Stamaty, and subsequently learned harmony under

## St. Thomas

Maleden. In 1847 he studied the organ under Benoist. At the age of 16 he wrote his first symphony, which was performed with success, and was followed by numerous other instrumental works. He became organist, first of the church of St. Mery, and in 1858 of the Madeleine, where he continued till 1877. "Samson and Dalila," a sacred drama, was produced at Weimar in 1877, and was subsequently successfully revived at Rouen. His reputation as a composer is high, though he has not attained the highest rank in opera.

**Saintsbury, George Edward Bateman**, an English litterateur; born in Southampton, England, Oct. 23, 1845; was educated at King's College School, and Oxford. From 1868 till 1876 he filled scholastic appointments at Manchester, Guernsey, and Elgin, but soon after established himself in the literary world of London as one of the most active and influential critics of his day.

**Saint Simon, Claude Henri, Comte de**, a French social philosopher, the founder of French socialism; born in Paris, France, in 1760. On the breaking out of the Revolution bought a considerable quantity of confiscated land, with the view of establishing a large scientific and industrial school; the scheme was a failure. From this time he devoted himself to what he termed a "physico-political" reformation; he married and continued to pursue his career, in which good and evil were confounded. This, in 1807, came to an end, and he was compelled to become a clerk in a government office at a small salary. In 1812 he published a number of remarkable works which attracted round him many disciples. He died in 1825.

**St. Thomas**, city and capital of Elgin county, Ontario, Canada; on Kettle creek and the Grand Trunk and other railways; 17 miles S. of London; contains repair shops of the Michigan Central railroad and manufacturing of car wheels, farm implements, fiber ware, and bent-wood; and is the seat of Alma Ladies' College, Collegiate Institute, Amasa Wood Hospital, and Williams Home for the Aged. Pop. (Est. 1930) 18,000.

**St. Thomas**, a volcanic island of Africa belonging to Portugal; in the Gulf of Guinea; 170 miles W. of the mouth of the Gabun river. Its S. extremity almost touches the equator. Measuring 32 miles by 21, it has an area of 360 square miles; pop. (Est.) 45,000. Chief town, St. Thomas, on the N. E. coast. The island was discovered in 1470, and colonized in 1493 by the Portuguese.

**St. Thomas**, one of the Virgin Islands, W. I., formerly belonging to Denmark; 36 miles E. of Porto Rico; area, 33 square miles. English is the language of the educated classes. The port, Charlotte Amalie or St. Thomas, was formerly a busy emporium for the European trade of the West Indies. The population in 1901 was 11,012, chiefly descendants of negro slaves. St. Thomas was discovered by Columbus in 1493, and with its sister islands, St. Croix and St. John, was acquired by the United States for \$25,000,000 gold, Jan. 17, 1917. The group was renamed the Virgin Islands of the United States and placed under naval control.

**St. Valentine's Day**, the 14th day of February, dear to the hearts of all youth. There is no doubt that the custom of sending valentines can be traced in origin to a practice among the ancient Romans. At the feast of the Lupercalia, which was held on Feb. 15, the names of all the virgin daughters of Rome were put in a box, and drawn therefrom by the young men. Each youth was bound to offer a gift to the maiden who fell to his lot, and to make her his partner during the time of the feast.

St. Valentine was a bishop of Rome during the 3d century. He was successful in converting the pagan Romans to Christianity. For this reason he incurred the displeasure of the Emperor, who hated and persecuted the little Christian band, and he was martyred by order of that ruler, first beaten with clubs and then beheaded. The date of his death was Feb. 14, 270. Archbishop Wheatley says that "St. Valentine was so famous for his love and charity that the custom of choosing valentines on this festival took its rise from thence." When the saint

came to be placed in the calendar, his name was given to the day of his death, and this was made a festival.

**St. Vincent**, one of the British islands in the West Indies, Windward Group, 105 miles W. of Barbadoes; area, 150 square miles; pop. (Est.) 50,000. It is traversed from N. to S. by a chain of volcanic mountains, which rise in the volcano called the Soufriere to 3,000 feet. Many of the valleys are fertile, and the shores are rich and productive. The climate is healthy. The chief town is Kingstown at the head of a bay on the S. W. coast. The island is ruled by a governor and a nominated legislative council of eight members; previous to 1877 it had a representative government. St. Vincent was discovered by Columbus in 1498.

**Sajou**, a lively and active monkey, of South America, docile, but somewhat capricious. It has a prehensile tail, though it is not so delicate an organ of touch as in some other species.

**Sajous, Charles Euchariste de' Medici**, an American physician; born at sea Dec. 13, 1852; was graduated at Jefferson Medical College in 1878; became dean and professor there, and later accepted the chair of anatomy and physiology in the Medico-Chirurgical College, Wagner Institute of Science.

**Sakhalin**, a long island in the North Pacific, separated from Manchuria by the Gulf of Tartary, opposite the mouth of the Amur; area, 24,560 sq. m. The center rises from 2,000 to 5,000 ft. in three parallel N. to S. ridges. In 1875 Japan was compelled to cede it to Russia, but in 1905 regained the southern half to 50°N. after the Russo-Japanese War (q. v.).

**Saki**, a monkey, called also fox-tailed monkey, found in South America. These animals usually reside in the outskirts of forests, in small societies of 10 to 12 individuals. On the slightest provocation they display a morose and savage temper; and, like the howlers, they utter loud cries before sunrise and after sunset.

**Saki**, or **Sake**, the native beer and common stimulating drink of the Japanese. It is made from rice, drunk warm, producing a very speedy but transient intoxication.



**Sakuntala**, one of the most pleasing female characters of Hindu mythology. She is mentioned as a water nymph in the "Yajurveda"; her name has become especially familiar in the United States and Europe through the celebrated drama of Kalidasa, which became the starting point of Sanskrit philology in Europe.

**Sal**, one of the most valuable timber trees of India, growing to the height of 100 feet. Extensive forests of it exist in Northern India, where it is largely used in carpentry of all kinds. It yields a resin used to caulk boats and ships, and also for incense.

**Sala, George Augustus Henry**, an English journalist; born in London, England, in 1828. He acquired a large fortune in journalism, but was recklessly extravagant and finally became bankrupt. He died in Brighton, England, Dec. 8, 1895.

**Salaam**, the general term of salutation among the Mohammedans.

**Saladin**, or **Salaheddin**, a celebrated Sultan of Egypt and Syria; born in 1137. He made great conquests in Syria, Arabia, Persia, and Mesopotamia; after which he defeated the Christians with great slaughter near Tiberias. This was followed by the surrender of Jerusalem. In 1189 Richard Cœur-de-Lion, with his ally, Philip Augustus, King of France, laid siege to Acre, which, after a two years' struggle, was taken by them; but a truce was concluded between Saladin and the Christians; soon after which the Sultan died in Damascus in 1192.

**Salamanca**, a city of Spain; on and between four low hills beside the river Tormes, 110 miles N. W. of Madrid. From the middle of the 13th to the close of the 17th century it was the seat of one of the most celebrated universities in Europe. In the 16th century there were here from 6,000 to 8,000 students; at the present day there are not more than 400. The university buildings date chiefly from the 15th century and are Gothic in style. In Salamanca's palmy days her population reached 50,000, and the university counted more than a score of colleges. The city is still surrounded with walls, pierced by 10 gates, and preserves very much of its mediæval

appearance. The river is crossed by a bridge of 27 arches, in part of Roman construction. The great square is the largest perhaps in Spain. It was used for bull fights, and can hold 20,000 spectators. In the Middle Ages Salamanca was famous for its leather work. The town was captured by Hannibal in 222 B. C. The Moors were expelled in 1055. During the Peninsular war it was taken by the French (1812), and in the vicinity Wellington defeated Marmont on July 22, 1812. Pop (1925 Est.) 39,400.

**Salamander**, a genus of reptiles closely allied to the frog, from which it differs in having an elongated body terminated by a tail, and four feet of equal length. Together with the frog, this genus is included under the order Batrachia, and is easily distinguished



GIANT SALAMANDER.

from the lizards by having no nails on the toes, a naked skin destitute of scales, and a heart with a single auricle. Found in North America and Europe.

**Salamis**, or **Pityoussa** (modern name Koluri), an irregularly shaped, mountainous island of ancient Greece, off the coast of Attica. Its area is

about 30 square miles. It had anciently two principal towns, Old and New Salamis. It is remembered chiefly on account of the great naval battle between the Greeks and Persians, which was fought with great bravery (480 B. C.) a few days after the battle of Thermopylae, but in which the Persians were entirely defeated.

**Sal Ammoniac**, known also as chloride of ammonium, and sometimes as hydrochlorate of ammonia.

**Salangane**, a species of swift resembling swallows, common throughout the Eastern Archipelago, and famous as the producers of the "edible bird's nests."

**Salanx**, a small whitish fish, known on the coast of China as whitebait.

**Salawatty**, an island off the W. extremity of New Guinea, to the Dutch portion of which it is regarded as belonging; area about 750 square miles.

**Saldanha Oliviera e Daun, Joao Carlos, Duke of**, a Portuguese statesman; born Nov. 17, 1791; was educated at Lisbon and entered the army. When the French invaded Portugal he took the patriotic side. From 1817 to 1822 he was in South America and took a leading part in the struggle between Brazil and Montevideo. When Brazil declared herself independent of Portugal, Saldanha returned to Lisbon, and in 1825 was appointed governor of Oporto. He took the part of Dom Pedro against Dom Miguel, finally forcing Miguel to sign the convention of Evora Monte (May 26, 1834) and leave Portugal. During 1836-1846 Saldanha lived partly in exile, partly in retirement. Saldanha returned home in 1846; and from that time down to 1856 was alternately at the head of the government. During the reign of Pedro II. he held no great office of state, and under King Louis was kept abroad as ambassador at Rome and London. He died in London, Nov. 28, 1876.

**Sale, George**, an English, oriental scholar; born in 1680; died 1736. He was a lawyer by profession, and a contributor to several important publications. He is chiefly known by his translation of the Koran, which appeared in 1734.

**Salem**, a city, port of entry, and one of the county-seats of Essex co., Mass.; on Massachusetts Bay, 17 miles N. E. of Boston. With the exception of Plymouth, Salem is the oldest settlement in New England, and is noted for its many historical interests. Its first house was erected by Roger Conant in 1626, and two years later John Endicott founded the first permanent settlement. The framework of the first church, built in 1634, is still intact. The witchcraft delusion arose here in 1692, and 19 persons were executed because of it. On Oct. 7, 1774, the Massachusetts House of Representatives with John Hancock in the chair met in Salem and declared the independence of that province. On Feb. 14, 1775, the British, in their search for war munitions, were foiled at the North Bridge and forced to withdraw. During the Revolutionary War over 150 privateers sailed from Salem and captured in all 445 English vessels. In 1785 the first vessel from the United States to India and China left this port. Pop. (1930) 43,353.

**Salem**, city and capital of Marion county and of the State of Oregon; on the Willamette river and the Southern Pacific railroad; 52 miles S. of Portland; has important manufactures, fruit canneries, and evaporators; and, besides the State Capitol, is the seat of Willamette University (M. E.), United States Training School for Indians, and the State Prison, Reform School, Asylum for the Insane, and Institutions for Deaf Mutes and the Blind. Pop. (1930) 26,266.

**Salesian Nuns**, the nuns of the order of the Visitation of the Virgin Mary, founded by Francis de Sales and Madame de Cantal, in 1610, at Annecy, in Savoy, as a refuge for widows and sick females.

**Saley, or Salayer, Islands**, a group of islands in the Indian Ocean; S. of Celebes, from which Great Saleyer is separated by the Saleyer Strait. They are about 30 in number: pop. about 61,000.

**Sallians, or Salian Franks**, the name given to that section of the Franks who from the 3d to the middle of the 4th century were settled on the left bank of the Lower Rhine.

**Salicine**, a bitter crystalline substance obtained from the bark of willows, and used in medicine, especially in the treatment of rheumatic fever, also in neuralgia.

**Salic Law**, the code of laws of the Salian Franks. One of the laws in this code excluded women from inheriting certain lands, probably because certain military duties were connected with the holding of those lands. In the 14th century females were excluded from the throne of France by the application of this law to the succession to the crown, and it is in this sense that the term salic law is commonly used.

**Salicylic Acid**, an organic acid of a sweetish-sour taste, without smell, possessing great antiseptic and antiputrefactive properties. It occurs in nature in the flowers of the meadow-sweet, and in the whortle-berry; but that preferred by the medical profession is procured from the oil of the winter-green (*Gaultheria procumbens*). There are now several processes for manufacturing salicylic acid on a large scale, and it forms an important article of commerce. It is largely employed in medicine, having properties similar to those of quinine, and is given in acute and chronic rheumatism, used as a lotion in irritation of the skin, etc. A salt prepared from it, salicylate of sodium, is often preferred.

**Salina Formation**, a name given in North America to one of the subdivisions of the Silurian system, which appears to be equivalent to the lower portion of the Ludlow rocks of the British series.

**Salina**, a city, capital of Salina co., Kansas, on the Union Pacific Railroad, 100 miles W. of Topeka. Pop. (1916) 12,008.

**Salisburia**, the ginkgo, or maiden-hair tree, is 60 to 80 feet high, with a straight trunk, a pyramidal head, and fan-shaped deciduous leaves, with forked veins.

**Salisbury**, or **New Sarum**, a cathedral city of England, 84 miles W. S. W. of London. Water originally ran through most of the streets, but the streams were covered over after the visitation of the cholera in 1849. The cathedral, built in 1220, was restored in 1782-1791, and again in

1863. The spire is the highest in England, being 400 feet. There is a curious muniment room over the vestry containing a copy of the Magna Charta of King John, said to be that handed to Longespee, Earl of Salisbury, who was one of his witnesses. The cathedral stands apart from any other building in the midst of a beautiful close of about half a square mile in extent, encircled by a wall, within which stand the bishop's palace, the deanery and canons' houses, and many other picturesque buildings. Blackmore Museum contains one of the finest collections of prehistoric antiquities in England, the collection from America being unrivaled. Pop. (1921) 22,867.

**Salisbury, Edward Elbridge**, an American philologist; born in Boston, Mass., April 6, 1814; was graduated at Yale University in 1832, and then studied theology till 1835, when he went abroad and took a course in Oriental languages. He was Professor of Arabic and Sanskrit at Yale University in 1841-1854. Died 1901.

**Salisbury, Robert Arthur Talbot Gascoyne Cecil, 3d Marquis of**, an English statesman; born in Hatfield, Herts, England, Feb. 3, 1830; was educated at Eton and Oxford. As Lord Robert Cecil he entered Parliament in 1853; in 1866 he was appointed secretary of state for India. In 1865 he became Lord Cranborne and heir to the marquissate. He retired from the ministry, but on the death of his father in 1868 and his elevation to the House of Lords he returned to his old party associations. He resumed the secretaryship for India in 1874. In 1878 he accompanied Disraeli to the congress at Berlin, and on the death of that statesman became the recognized leader of the Conservative party. He became premier on the fall of the Gladstone government in 1885. Gladstone succeeded again to power in the end of the same year, but in the June following Salisbury again became premier and foreign secretary. In 1892 the majority in Parliament being in favor of a Home Rule bill for Ireland, Salisbury retired from office. In 1895 he was recalled, and he died Aug. 23, 1903.

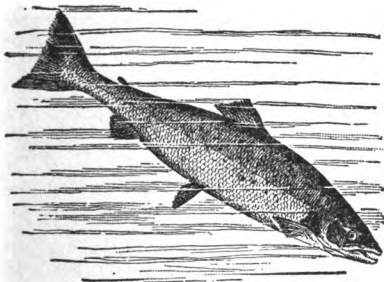
**Saliva**, the transparent watery fluid secreted by glands connected with

the mouth. The quantity secreted in 24 hours varies; its average amount is probably from 1 to 3 pints. It keeps the mouth in a due condition of moisture, and by mixing with the food during mastication it makes it a soft pulpy mass such as may be easily swallowed.

**Salix**, the willow. The species found in the United States are numerous, and commonly known as willows, oslers, and sallows. The wood of the flexible branches and twigs is largely employed for basket-work, hoops, etc.

**Sallust, Caius Sallustius Crispus**, a Roman historian; born in Amiternum in 86 B. C. He became tribune in 52 B. C., and in the civil war sided with Cæsar. In 47 B. C. he was prætor elect, and in the following year accompanied Cæsar to the African war, where he was left as governor of Numidia. He returned with immense wealth, and after Cæsar's death lived in luxurious retirement. Sallust wrote several historical works in a clear and concise style. He died in Rome in 34 B. C.

**Salmon**, a well-known fish, inhabiting both salt and fresh waters, and ranking prominent among the food fishes of the United States and other



SALMON.

countries. It generally attains a length of from three to four feet, and an average weight of from 12 to 30 pounds. In the fall the salmon ascends rivers for the purpose of spawning, and often encounters obstacles. In many streams they are assisted by structures known as "salmon ladders."

The total investment in the Alaskan fisheries in the calendar year 1915 was \$37,316,560, and approximately 86 per cent. of this capital was in the salmon industry. The number of persons employed was 22,462, and the total value of the products was \$20,999,343, a decrease in a year because of lower prices, though the output was larger. In the commercial fishery there were taken 63,537,244 salmon of all species, an increase in a year of 8,921,329. There were operated 85 salmon canneries, and the pack was the largest in the history of Alaska, amounting to 4,500,293 cases, valued at \$18,633,015. Five privately owned salmon hatcheries were operated in Alaska in the year ended June 30, 1915, and the output of red-salmon fry was 79,619,500. Salmon from Puget Sound have been successfully established in several New England waters, and Atlantic salmon in the Penobscot river.

**Salmon, Daniel Elmer**, an American veterinary surgeon; born in Mt. Olive, N. J., July 23, 1850; was graduated at Cornell University in 1872, and at its Veterinary Department in 1876. He accepted a post in the United States Department of Agriculture in 1879; was made chief of the United States Bureau of Animal Industry in 1884; became president of the United States Veterinary Medical Association in 1898; and dean of the Veterinary Department of Columbian University. He died Aug. 30, 1914.

**Salm-Salm, Prince Felix**, a German military officer; born in Anhalt, Prussia, Dec. 25, 1828. He attained his first rank as an officer in the Prussian army; later entered the Austrian service, but was forced to resign on account of pecuniary difficulties; in 1861 came to the United States and as a volunteer served in the Union army during the Civil War, attaining the brevet rank of Brigadier-General of volunteers. In 1866 he entered the service of Maximilian, the Emperor of Mexico; soon gained the confidence of the emperor, and was made chief of the imperial household and aide-de-camp to his majesty. On the overthrow of the empire he returned to Europe, reentered the Prussian army as major in the Grenadier Guards; participated in the battle of

Gravelotte in the Franco-Prussian War Aug. 18, 1870, in which he was killed.

**Salm-Salm, Princess** (Agnes Leclercq), an American heroine; born in Baltimore, Md., Dec. 25, 1840. After winning some reputation as an actress, in 1862 she married Prince Salm-Salm and accompanied him in his campaigns. She was regularly commissioned as a captain in the volunteer service of the United States in recognition of her untiring devotion to the Union cause. After the Civil War in the United States she joined her husband in the City of Mexico, and insisted on accompanying him, armed with a revolver, on a scouting trip to the interior. Separated from him and left behind in the City of Mexico, she had many serious and exciting adventures. At the battle of Gravelotte she was on the field with a corps of army nurses and was thus enabled to reach her husband's side after he was shot; not, however, in time to see him again alive. In 1876 she married Charles Heneage and afterward lived in Bonn. In the spring of 1899 she visited the United States.

**Salome**, the mother of James the Elder and John the Evangelist, one of those holy women of Galilee who attended our Saviour in His journeys and ministered to Him.

**Salonica** (ancient Thessalonica), a Department and seaport of Greece, on a gulf of the Aegean Sea, 315 miles W. S. W. of Constantinople, rising from the sea in the form of an amphitheater, and forming a mixture of squalor and splendor. In Salonica may still be seen vestiges of Cyclopean and Hellenic walls, triumphal arches, and remains of Roman temples, Byzantine structures, and Venetian castles. Its harbor is excellent and its roadstead well sheltered, and next to Constantinople it was the most important city of European Turkey. Thessalonica was founded in 315 B. C., and has had a somewhat eventful history. St. Paul preached the Gospel here, and addressed two of his epistles to the Christian converts of the place. Salonica was acquired by Greece as a result of the war with Turkey from Oct. 17, 1912, to May 30, 1913, and with Bulgaria from June 30 to Aug. 10,

1913. The new territory thus gained has an area of 16,919 square miles, and pop. (1923) of 578,838; pop. of town, (1923) 352,551. For later history of the town, see APPENDIX: *World War*.

**Salsette**, an island N. of Bombay, British India, with which it is connected by a bridge and a causeway. Area, 240 square miles; pop. 111,000. Chief town, Thana. Nearly 100 caves and cave-temples exist at Kanhari or Keneri, in the middle of the island, 5 miles W. of Thana. They are excavated in the face of a single hill, and contain elaborate carvings, chiefly representations of Buddha.

**Salt**, chemically known as **CHLORIDE OF SODIUM**, has been in common use as a seasoner and preserver of food from the earliest ages. It exists in immense quantities dissolved in sea-water, and also in the waters of salt springs, and in solid deposits, sometimes on the surface, sometimes at greater or less depths, in almost every geological series. Salt as a commercial product constitutes a very important industry in the United States. As early as 1620 the Jamestown colonists of Virginia established salt works at Cape Charles. Rock salt is abundant in West Virginia and Louisiana, and salt "licks" and springs are found in nearly all the States and Territories. The springs of Southern Illinois were worked by the French and Indians in 1720. The Kentucky salt springs were known and used before 1790.

In the calendar year 1927 the total salt production in the United States amounted to 7,568,690 tons with a market value of \$24,817,962. The importations amounted to 44,968 tons, the exportations 153,832 tons.

**Salter, William Mackintire**, an American theologian; born in Burlington, Va., Jan. 30, 1853; was graduated at Knox College in 1871, and pursued courses at Yale and Harvard Divinity Schools in 1871-1876 and also studied abroad. He was lecturer of the Society for Ethical Culture of Chicago and also of Philadelphia.

**Salt Lake City**, a city, capital of the State of Utah, and county-seat of Salt Lake co., 37 miles S. of Ogden. It is built at the base of the Wah-



satch Mountains and has an altitude of 4,334 feet above sea-level. The valley in which the city is located is world-famed for its beauty, resources, climate, and health-giving properties.

The city is laid out in blocks 600 feet square, with streets 132 feet wide and is considered a model city layout. In 1926 it was estimated that there were 91 public schools housed in 40 school buildings. There were 974 teachers, and 31,485 pupils. There was a daily average attendance of 28,062. In the year ending June, 1926, the total expenditure for schools was \$2,063,657.

In 1926 there were reported 202 manufacturing plants employing 4,898 wage earners, paying \$5,876,116 for wages, and \$16,880,896 for raw materials, and yielding products having a combined value of \$32,589,100.

Besides the Mormon Church over thirty religious organization are represented, and it is the seat of a Roman Catholic and Protestant Episcopal bishop, having stately cathedrals under each.

The first point of interest in the city is the Great Temple erected of granite at an estimated cost of \$5,000,000. It is 200 feet long by 100 feet wide. Among the other great buildings are the Tabernacle, built principally of wood, at a cost of \$500,000, with the largest roof in the world unsupported by columns, and having a seating capacity of 13,500; the Assembly Hall; Endowment House; the Gardo House, the residence of the president of the Mormon Church; and the Lion and Bee-hive Houses, former residences of Brigham Young. Fort Douglas, a regimental post, is 3 miles from the city. The city was founded by 143 Mormons under Brigham Young in 1847. Pop. (1930) 140,267.

**Saltpeter, or Saltpetre**, a natural product of some tropical regions, particularly Chile and Peru in South America. Chemically known as potassium nitrate and formed by oxidation of matter containing nitrogen. Artificially produced by the action of potassium chloride upon sodium nitrate or Chile saltpeter. Used in the manufacture of gunpowder, as a preservative of meat, for medicinal purposes and as a fertilizer.

**Salt River**, an imaginary river up which defeated candidates for office in the United States are said to row.

**Saltus, Edgar Everston**, an American novelist; born in New York, June 8, 1858. He was educated in Europe and graduated at the Columbia Law School.

**Saltus, Francis Saltus**, an American poet, brother of Edgar; born in 1849. He was of the modern school of poets. He died in 1889.

**Saltykov, Michail Yevgrafovich**, pseudonym N. Sheshedrin, a noted Russian satirist; born Jan. 27, 1826. He died in St. Petersburg, May 12, 1889.

**Saltwort**, the Salsola, a genus of plants. The species are numerous, mostly natives of salt marshes and sea-shores, widely diffused. It was formerly collected in considerable quantities, to be burned for the sake of the soda which it thus yields.

**Salutes, Military**, military courtesy requires the junior to salute first or when the salute is introductory to a report made at a military ceremony or formation to the representative of a common superior. When under arms the salute is made with the sword or saber if drawn, otherwise with the hand, and a mounted officer always dismounts before addressing a superior who is not mounted. On official occasions officers, when indoors and under arms, do not uncover, but salute with the sword, if drawn, and otherwise with the hand. If not under arms they uncover and stand at attention, but do not salute except when making or receiving a report.

**Salutes With Cannon**. Salute to the Union. This is one gun for each State, and is commemorative of the Declaration of Independence. It is fired at noon of the Fourth of July at every military post and on board commissioned naval vessels belonging to the United States. The National Salute, 21 guns. This is the salute for the National flag, the President of the United States, presidents of foreign republics or sovereigns of foreign States visiting the United States, Vice-President of the United States, American and foreign ambassadors, 19 guns. The president of the Senate, speaker of the House of Representa-

## Salut Public

tives, members of the cabinet, the chief-justice, a congressional committee, governors within their respective States or Territories, viceroy or governor-general of provinces belonging to foreign States, general of the army, admiral of the navy, and same ranks in foreign armies and navies, 17 guns. American or foreign envoys, or ministers plenipotentiary, assistant Secretaries of Navy or War, lieutenant-general, or a major-general commanding the army, and corresponding ranks in the navy and foreign armies and navies, 15 guns. Ministers-resident accredited to the United States, major-general, rear-admiral, and corresponding ranks of foreign armies and navies, 13 guns. Charges d'affaires, brigadier-general, commodore, and corresponding ranks in foreign armies and navies, 11 guns. Consuls-general accredited to the United States, 9 guns. Salutes are only fired between sunrise and sunset, and not on Sundays, except in international courtesies. The national colors are always displayed at the time of saluting. The salute to the flag is the only salute which is returned, and this must be done within 24 hours.

**Salut Public, Comité de** (French, Committee of Public Safety), the term applied to a number of members of the National Convention during the Reign of Terror, 1793-1794, who acted as the dictators of France. Robespierre, the real chief, though half concealed from view, Couthon, and St. Just, finally came to be the committee. Among these men there was perfect equanimity down to the moment of their fall. Robespierre, Couthon and St. Just were executed on the 9th Thermidor (July 28, 1794).

**Salvador, or San Salvador**, a republic in Central America; on the Pacific Ocean; area, 7,225 sq. miles; pop. (1923) 1,550,000, mostly Spanish-speaking Indians and half-breeds. A range of volcanic peaks, varying in height from 4,000 to 9,000 feet, runs through the center of the country, dividing an interior valley from the lowlands, on the coast. The soil is remarkably fertile. Cattle-breeding is carried on, but not extensively. The manufactures are unimportant. The chief exports are coffee, indigo, silver, raw sugar, balsam of Peru,

## Salvation Army

leather, etc. The established religion is Roman Catholicism. The government is carried on by a president and four ministers. There is a congress of 70 deputies elected by universal suffrage. The inhabitants had long the reputation of being the most industrious in Central America, and the State, in proportion to its size, is still the most densely peopled. Salvador remained under Spanish rule till 1821, when it asserted its independence and joined the Mexican Confederation. In 1823 it seceded; later, was part of the Republic of Central America; in 1853 became an independent republic; in 1906 was embroiled with Honduras in the war with Guatemala.

**Salvage**, the act of saving a ship or goods from extraordinary danger, as from fire, the sea, an enemy, pirates, or the like.

**Salvation Army**, a religious body founded on military principles in London, England, July 5, 1865, by the Rev. William Booth, under the name of the Christian Mission, for the purpose of reaching with the Gospel the large percentage of the working and other classes who attend no place of worship. The movement has spread all over the globe, and to its original purpose have been added from time to time other functions of a broad humanitarian character, and to-day it commands the approval and support of representatives of nearly all creeds and peoples.

In 1878 the name was changed from the Christian Mission to the Salvation Army, and in 1880 the movement was inaugurated in the United States, in New York city. Though at first decried, the officers and privates soon began reaching people with whom the evangelical churches did not come in contact.

The present broad work of the Army dates from 1890, when the founder published a book entitled "In Darkest England and the Way Out," in which he set forth with much detail principles and plans for the solution of the great problem of pauperism. This soon led to a rapid development of the Salvation Army along sociological lines, in addition to its purely religious propaganda. The members, both male and female, wear a distinctive uniform.

The founder, called "General" Booth, was the commander-in-chief of all Salvation Army forces throughout the world, and had his headquarters in London. The United States is divided into two Departments with the National Headquarters in New York city. Miss Evangeline Booth is in charge, with Colonel William Peart as Chief Secretary. The Department of the West, which administers the affairs of the Western States, has its Headquarters in Chicago, Commissioner Thomas Estill is in charge, with Colonel Sidney Gauntlett as Territorial Secretary.

The following statistics cover the year ending September 1928, and relate wholly to the work of the organization thruout the United States.

The Corps and Outposts of the Salvation Army numbered 1704. There were 544,462 indoor services with a result of 110,135 converts. The number of officers wholly employed in the service of the Army was 4,670. There were 13,954,165 issues of The War Cry, printed.

The relief institutions for the poor include 166 social service centers thru which 25,411 men passed; 70 workmen's hotels, and 13 womens hotels and boarding houses with accommodations for over nine thousand; 9 children's homes with 840 children, 13 settlements and day nurseries, and 34 women's homes and hospitals sheltering 2,293.

There were 19,200 prisoners assisted on discharge and situations found for them, and 2,335,292 needy persons given temporary relief. Thanksgiving dinners numbering over 34,000 were provided as were 591,864 Christmas dinners and toys. There were 42,541 mothers and children provided with summer holidays.

**Salvini, Tommaso**, an Italian tragedian; born in Milan, Jan. 1, 1830. His father and mother were both actors. In 1847 he joined the company of Adelaide Aistori, later playing in New York city with Edwin Booth. Among his roles were Macbeth, Othello, King Lear, Conrad in La Morte Civile, Saul in Saul, Egisto Merape, Pacolo in Francesca da Rimini. In 1849 he fought with

distinction in the Revolutionary War. He scored successes in Brussels and Madrid, and visited the United States in 1874, England in 1875, but after another visit to the United States in 1881, and to Great Britain in 1884, he retired from the stage to his villa near Florence. He died Jan. 1, 1916.

**Salvinia**, a genus of the order of plants formerly called pepperworts, now known as the heterosporous ferns.

**Salzburg**, a city of Austria, capital of the duchy of Salzburg, situated on both banks of the rapid Salza, 63 miles S. E. of Munich. The principal edifices are the cathedral (1614-1628) built in imitation of St. Peter's, Rome; the archbishop's palace, imperial palace, exchange, museum, and several benevolent institutions. It was the birthplace of Mozart. The manufactures are varied, but not of importance. The Bishops of Salzburg were princes of the German empire, and held the position of sovereigns over the archbishopric till it was secularized in 1802. Pop. (1923) 37,856. The duchy or crown-land of Salzburg, area 2,767 square miles, is a rugged mountainous country, intersected by numerous valleys, but in many of them much corn and fruit are raised. Wood is abundant, and the minerals include gold, silver, lead, copper, cobalt, iron, salt, and marble.

**Samar**, the third largest of the Philippine Islands; S. E. of the E. part of the island of Luzon, from which it is separated by the Strait of San Bernardino; and the extreme E. of the Visaya group. On the S. W. it is separated from the island of Leyte by the Strait of San Juanico. The W. coast is bounded by the Western Sea, and the E. coast by the Pacific Ocean. The island is mainly mountainous, although there are many fine valleys under cultivation. Samar extends 156 miles from N. W. to S. E., 75 miles from the E. to W., and has an area with adjacent islands of 5,488 square miles; pop. 266,237. There are many fine kinds of wood, numerous varieties of wild fruits, various kinds of bamboo, roots suitable for food, rattan.

**Samara**, a town of Russia, capital of the province of same name; 550 miles E. S. E. of Moscow, at the confluence of the Samara with the Volga. Pop. (1923) 150,132. The province lies on the left bank of the Volga; area, 58,320 square miles; pop. 3,800,800. A great part is flat and fertile, but is little cultivated. Wheat and other kinds of grain are the chief products.

**Samarcaud**, a city of Turkestan; in the valley of the Zerafshan, among the W. spurs of the Tian-Shan Mountains; 130 miles E. by S. of Bokhara. It is the ancient Marcanda, the capital of Sogdiana, which was taken and destroyed by Alexander the Great, and again captured in A. D. 712 by the Arabs, from which time it has been a sacred city in the eyes of the Moslems. In the 14th century Timur made it the capital of his empire, and it had a population of 150,000. From his day it figured in most of the wars that raged in that region till it fell into the hands of the emirs of Bokhara, from whom it was taken by the Russians in 1868. It is one of the world's most interesting cities. Pop. (Est.) 100,000.

**Samaria**, a city and country of Palestine; situated toward the N. of Judea. Samaria was the country in which the 10 revolted tribes raised their independent state and formed the kingdom properly denominated Israel, in contradistinction to that of Judah, embracing the two tribes of Judah and Benjamin, from which the other 10 had seceded when, refusing the authority of Rehoboam, they established a dynasty of their own, at the head of which they placed Jeroboam, the first king of the nation of Israel. So deadly was the animosity that existed between these two nations of Jews, that, from the time of their severance to the destruction of their capital and the captivity of Israel, an almost perpetual state of warfare existed between Judah and Israel; the term of Samaritan was one of the bitterest contempt and reproach that could be applied to any one. The city of Samaria, and capital of the kingdom, was situated on a hill, Mount Sameron, was founded by Omri, and from that time till its overthrow by

the Assyrians was the residence of all the Kings of Israel.

**Samaritan Pentateuch**, a recension of the Hebrew text of the Pentateuch, in use with the Samaritans, and accepted by them as canonical to the exclusion of the other Old Testament writings. Early in the 17th century the famous traveler Pietro della Valle succeeded after much inquiry in procuring at Damascus a copy not only of the original of this Pentateuch of the Samaritans, but also of the ancient translation, or Targum, in the Samaritan dialect; both documents passed in 1623 into the hands of the Oratorians in Paris. Through Ussher and others a number of additional Samaritan codices were brought to Europe in the course of the 17th century, so that Kennicott was able to use for his Hebrew Bible 16 MSS. more or less complete. Of the MSS. that have reached Europe none are older than the 10th century. All are written in a peculiar modification of the old Semitic character which is now known to have been at one time common to the entire Semitic domain, and also to have constituted the basis of the Greek alphabet.

**Samaritans**, a mixed people, which inhabited the region between Judea and Galilee, and formed a sect among the Jews. On the return of the Jews from captivity they declined to mix with the Samaritans, though united with them in religion. The latter attempted to prevent the Jews from building the temple at Jerusalem, and, failing in this, built a temple on Mount Gerizim exclusively for their own worship. A few of the race still exist scattered in Egypt, at Damascus, and at Gaza.

**Sambo**, since 1918 a town of Poland, in Galicia; 40 miles S. W. of Lemberg, 160 miles S. E. of Cracow; is in the large plain of the Dniester; is well-built; has considerable trade and important manufactures; and has had a rapid growth. Pop. about 24,000.

**Sambuke**, an ancient musical instrument; though applied sometimes to several musical instruments of different kinds, such as a lyre, a dulcimer, a triangular harp or trigon, and a large Asiatic harp.

**Samoa Islands**, a group in the South Pacific Ocean, formerly known as the Navigator Islands. They are located about 2,000 miles S. and 300 miles W. of the Hawaiian Islands and 14° S. of the equator. They lie in an almost direct line between San Francisco and Australia and slightly S. of the direct steamship line connecting the Philippines with the proposed Panama or Nicaraguan interoceanic canals. Their especial importance lies more in their position as coaling and repair stations on these great highways of commerce rather than in their direct commercial value. The group consists of 10 inhabited and 2 uninhabited islands, with an area of 1,700 square miles and an aggregate population, according to the latest estimates, of 52,000. The bulk of the population is located in the three islands of Upolu, Savaii, and Tutuila. The islands are of volcanic origin, but fertile, producing coconuts, cotton, sugar, and coffee, the most important, however, being coconuts.

The government of the Samoa Islands had been from time immemorial under the two royal houses of Malietoa and Tupea, except on the island of Tutuila, which was governed by native chiefs. In 1873, at the suggestion of foreign residents, a house of nobles and a house of representatives were established, with Malietoa, Laupepa, and the chief of the royal house of Tupea as joint kings. Subsequently Malietoa became sole king. In 1887 he was deposed by the German government on the claim of unjust treatment of German subjects, who formed the bulk of foreign population on the island, and was deported first to German New Guinea and then to the Cameruns, in Africa, and finally in 1888 to Hamburg. Tamasese, a native chief, being meantime proclaimed by the Germans as king, though against the protest of the British and American consuls at Samoa. Mataafa, a near relative of Malietoa, made war upon Tamasese and succeeded to the kingship.

In 1889 a conference between the representatives of the American, British, and German governments was held at Berlin, at which a treaty was signed by the three powers guaranteeing the neutrality of the islands,

in which the citizens of the three signatory powers would have equal rights of residence, trade, and personal protection. By treaty of 1899 the islands were divided between the United States and Germany, the United States getting the important island of Tutuila, and the lesser islands of Ofu and Tau. Pago Pago was made a naval and coaling station, and the seat of American government for its islands.

On Aug. 29, 1914, the British occupied Apia; shortly after the outbreak of the World War the German islands in the North Pacific were captured by the Japanese, and on Nov. 18 following the Japanese government handed them over to the Australian forces. Under these conditions the islands S. of the Equator were administered (1917) by the Australian Commonwealth; those N. of the Equator by Japan; and Samoa by New Zealand.

**Samos**, an island in the Grecian Archipelago near the coast of Asia Minor; 45 miles S. W. of Smyrna, formerly a principality of Turkey; seized, and since held, by Greece in 1912. Area, 180 square miles. It has a mountainous surface; several fertile and well-watered valleys; produces corn, fruit, and excellent wine; and has several valuable minerals, including argentiferous lead, iron, and marble. The principal town is Vathe, with a good harbor on the N. E. side of the island. Samos was inhabited in antiquity by Ionian Greeks, and had an important position among the Greek communities as early as the 7th century B. C. In 84 B. C. it was united with the Roman province of Asia. In 1550 it was conquered by the Turks. Pop. (1924 Est.) 65,800.

**Samothrace**, or **Samothraki**, an island in the N. of the Aegean Sea, formerly belonging to Turkey; in 1917 tentatively to Greece and Italy; about 14 miles long by 8 miles broad. It has a very mountainous surface. It is of interest as being in antiquity the chief seat of the worship of the Cabiri, and celebrated for its religious mysteries. It is interesting also as being visited by St. Paul in the course of his second missionary journey.

**Samphire**, an umbelliferous plant, very succulent, pale green; grows wild along the sea coast.



**Sample, Robert Fleming**, an American clergyman; born in Corning, N. Y., Oct. 19, 1829; was graduated at Jefferson College in 1849; was pastor in Bedford, Pa., in 1856-1866, and in Minneapolis, Minn., in 1868-1887. Subsequently he became Professor of Christian Ethics at Lincoln University. He was several times moderator of the Presbyterian General Assembly of the U. S. He wrote a number of books. He died Aug. 12, 1905.

**Sampson, Deborah, an American** heroine; born in Plymouth, Mass., Dec. 17, 1760. She served in the Continental Army during the Revolutionary War, in the disguise of a man, under the name of Robert Shurtleff, and greatly distinguished herself for bravery. In 1797 she published "The Female Review," in which she related her experiences in the army. She died in Sharon, Mass., April 29, 1827.

**Sampson, William Thomas**, an American naval officer; born in Palmyra, N. Y., Feb. 9, 1840. He attended the public schools of his native town, and in 1857 entered the United States Naval Academy, from which he was graduated in 1860, and was assigned to duty on the frigate "Potomac." On July 16, 1862, he was promoted lieutenant. In 1864 he was appointed executive officer of the ironclad "Patapsco," of the South Atlantic Blockading Squadron, and which was blown up in Charleston harbor Jan. 15, 1865, while he was on board. After serving on the frigate "Colorado," of the European squadron, he was promoted to lieutenant-commander July 25, 1866; commander Aug. 9, 1874; and captain, March 26, 1889. Subsequently he was superintendent of the United States Naval Academy; a member of the International Prime Meridian and Time Conference; superintendent of the Torpedo Station; member of a board on fortifications and other defenses; chief of the Bureau of Naval Ordnance; superintendent of the Naval Observatory; a delegate from the United States to the International Maritime Conference in Washington; and president of the Board of Inquiry on the "Maine" disaster. On March 24, 1898, he was appointed commander of the North Atlantic squadron, succeeding Rear-Admiral Sicard, with the rank of

rear-admiral. On June 1 he joined Commodore Winfield S. Schley, commander of the "Flying Squadron," off Santiago de Cuba, and took command of the combined squadrons, which included 16 warships. Admiral Sampson was promoted to rear-admiral on Aug. 12, 1898; appointed commander of the Boston navy yard on Oct. 14, 1899; and was relieved of this command, owing to ill health, Oct. 1, 1901. On Feb. 9, 1902, was retired on reaching the age limit. He died May 6, 1902.

**Samson**, in Scripture, the son of Manoah, of the tribe of Dan. He was endowed with extraordinary strength and obtained several advantages over the Philistines. At length his mistress betrayed him into the hands of his enemies, who put out his eyes, and made him work at a mill. On a public festival when the Philistine lords were assembled in the temple of Dagon, Samson was summoned to show them sport. Laying hold of two pillars of the temple as if to support himself, he pulled down the building and was buried in the ruins, with more than 3,000 Philistines.

**Samuel**, in Scripture, a prophet and judge of Israel, of the tribe of Levi, was called in his youth, while attending Eli, the high priest.

**Samurai**, the feudal warrior class of Japan, originally retainers of a daimio or Samurai chieftain.

**San Antonio**, city and capital of Bexar county, Tex.; on the San Antonio river and several trunk line railroads; 80 miles S. W. of Austin; is the largest city in the State; is noted as the scene of the massacre of the Alamo in 1836; and in its day seven governments have possessed it, and eight battles have been fought on its soil for the independence of Texas. The city is in a farming and stock-raising section; has lignite coal, oil, and superior clays; manufactures a large variety of commodities; and has an extensive shipping trade. Here are many large artesian wells, Fort Sam Houston, the famous Alamo, San Fernando Cathedral, Federal Building, the Conception de la Acuna, San José, San Juan, and Espada missions. Pop. (1920) 161,308; (1930) 231,542.

**Sanborn, Franklin Benjamin**, an American journalist; born in Hampton Falls, N. H., Dec. 15, 1831; was graduated at Harvard University in 1855 and early turned his attention to journalism. He was editor of the Boston "Commonwealth," the Springfield "Republican" and the "Journal of Social Science."

**Sanborn, John Benjamin**, an American military officer; born in Epsum, N. H., Dec. 5, 1857; was educated at Dartmouth College; studied law, and was admitted to the bar in 1884. In the Civil War he served first as organizer of Minnesota troops and later took part in the battles of Iuka, Corinth, Port Gibson, Raymond and Vicksburg. In 1864 he took command of the District of Southwest Missouri, and in 1865 fought against the Indians of the Southwest. He was appointed to settle the Indian difficulties in 1866; member of the Indian Peace Commission in 1867-1868. Died in 1904.

**Sanborn, Katharine Abbott**, an American miscellaneous writer and lecturer; born in Hanover, N. H., July 11, 1839. She was Professor of English Literature in Smith College for several years, and resigned in 1886.

**Sanctification**, a term applied in Scripture, as well as in theology, to denote the process by which the effaced image of God in man is restored, and the sinner becomes a saint.

**Sanctuary**, among the ancient Jews the innermost chamber of the tabernacle—afterward of the temple, in which was kept the ark of the Covenant, and was never entered, except by the high priest once a year. It was also called the Holy of Holies.

**Sand**, comminuted fragments of igneous, metamorphic, or volcanic rocks, or of chert, flint, etc. They are detached from the parent rock, and as boulders and pebbles are ground against each other by water on sea-beaches or in any similar way. The colors of sand correspond to those of the minerals in the rocks from which they were detached. In the plural, tracts of land consisting of sand, as the deserts of Arabia or Africa; also, tracts of sand left exposed by the ebb of the tide.

In the commercial productions of the United States sand and gravel are considered a single commodity, occupying a high place among the national resources. In the calendar year 1915 the output of glass sand was 1,884,044 short tons, valued at \$1,606,640, and that of sand and gravel for molding, building, engine, furnace, and other uses (exclusive of glass sand), was 74,719,259 short tons, valued at \$21,514,977. The imports of sand for domestic consumption had a value of \$96,754, but in 1913 they reached \$172,257. The most productive States in 1915 were Pennsylvania, \$2,776,812; Ohio, \$2,634,145; New York, \$2,416,522; Illinois, \$1,984,569; New Jersey, \$1,447,557; Indiana, \$1,235,071; Michigan, \$1,036,739; California, \$977,116; Iowa, \$720,795; and Missouri, \$675,484.

**Sand, Musical**, sand which, under certain conditions, gives out a musical sound. The phenomenon occurs on sea-beaches in many localities in different parts of the world. The most striking is in the district of Mana, on the S. coast of Kauai, Hawaii, where it is known as "barking" sand.

**Sand, George**, best known name of Madame Armandine Lucile Aurore Dupin Dudevant, one of the greatest of French novelists; born in Paris, July 5, 1804. She was the daughter of Maurice Dupin, an officer of the republican army. Till the age of 14 she was brought up at the Chateau of Nohant, near La Chatre, mostly under the care of her grandmother, afterward spending nearly three years in an Augustinian convent in Paris. In 1822 she married Baron Dudevant, to whom she bore a son and a daughter; but in 1831 separated from him, and took up her residence in Paris. In conjunction with Jules Sandeau, a young lawyer, she wrote "Rose and White," which was published in 1831, with the pseudonym Jules Sand. The reception it met with afforded her an opportunity of publishing a novel solely by herself—"Indiana," under the name of George Sand, which she ever after retained. In 1836 she obtained a judicial separation from her husband, with the care of her children. She took an active interest in the revolution of 1848, and contributed considerably to newspaper and oth-

## Sandal

er political literature. In 1854 she published "Story of My Life," a psychological autobiography. Her published works consist of upward of 60 separate novels, a large number of plays, and numerous articles in literary journals. She died in Nohant, June 8, 1876.

**Sandal**, a protection for the foot, worn in ancient times. It was usually a sole of hide, leather, or wood, bound on the foot by thongs. It was undoubtedly the custom to take off the sandals on holy ground, in the act of worship, and in the presence of a superior. This is still the well-known custom of the East—an Oriental taking off his shoe in cases in which a European would remove his hat.

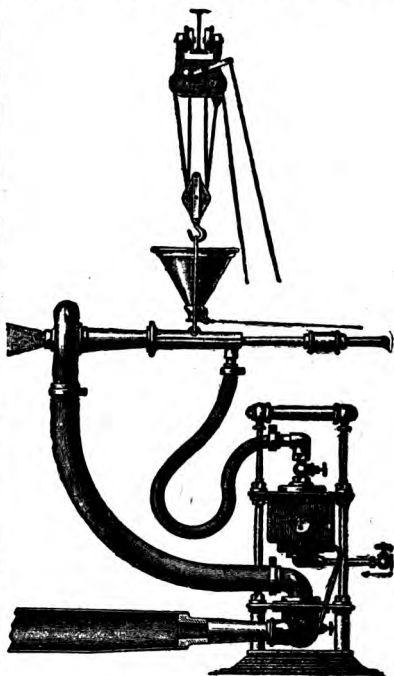
**Sandal Wood**, a small, greatly branched, evergreen tree, with leaves opposite and entire. The flowers are at first yellowish, but afterward of a deep ferruginous hue. Though they are inodorous, the wood when cut, especially near the root, is highly fragrant. It grows in the dry region of Southern India, and in the islands of the Indian Archipelago. When felled the trunk is about nine inches or a foot in diameter. It is then barked, cut into billets, and buried in a dry place for about two months. It is largely exported from India to China and Arabia, and, to a certain extent, to Europe. The heart wood is used in the East for carving, for incense, and for perfume. The seeds yield by expression a thick viscid oil.

**Sandal-wood Island**, or **Jeen-dana**, a large island in the Indian Archipelago, belonging to the Dutch residency of Timor, crossed by the meridian of 120° E.; area, 4,966 square miles; with a population of about 1,000,000. The coast is bold, and terminates at the S. extremity in a lofty and inaccessible peninsula. The interior is mountainous. Edible birds' nests, bees' wax, and sandal wood are obtained here.

**Sanday**, one of the Orkneys, an island of very irregular shape, generally with a very flat surface and a light sandy soil; greatest length, 13 miles. There is another small island of the same name in the Inner Hebrides, connected with Canna at low water, 4 miles N. W. of Rum.

## Sand Blast

**Sand Blast**, one of the most wonderful uses of sand, by means of which glass, stone, metals, or any other hard substance may be cut or engraved. If a stream of sharp sand be let fall from a high box (as high as the ceiling of a room) through a tube on to a plate of glass held under it, the sand will cut away little grains of the glass till at length the whole surface will be cut or scratched and it will look like



SAND BLAST APPARATUS.

ground glass. If, instead of cutting the glass all over, it is wanted to engrave a pattern or figure on it, the workman has only to cover the parts of the glass which he does not want cut with a stencil plate made of leather, rubber, paper, wax, etc., for the sand will not cut any soft substance. Metals and stones also may be cut by means of the sand blast, which will

## Sand Crab

not only scratch the surface, but will cut it away to any depth. The marble tombstones put up in the National cemeteries to the memory of soldiers killed in the war were made in this way. Iron letters were fastened on to the smooth face of the stone, which was then put under the sand blast, and the sand cut away all the marble not covered by the letters. When the iron patterns were taken off, the letters were left raised as if they had been cut out with the chisel. The work was done so fast that 300 headstones were made in a day, or as many as 300 men could have done in the same time, working with the hammer and chisel.

**Sand Crab, or Racing Crab**, a genus of crabs which live in holes in the sand along the sea shores of warm countries.

**Sand Eel**, in ichthyology, a popular name for the genus *Ammodytes*. They live in shoals, and are much sought after by fishermen, who discover their presence on the surface by watching the porpoises which feed on them.

**Sandemanians**, in Church history, the followers of Robert Sandeman, who in the latter part of the 18th century introduced into England and America the doctrine of the Glassites. The body is not numerous.

**Sander**, a species of fishes belonging to the perch family, and found in fresh-water rivers and streams in Germany and the E. of Europe generally. It is known under the name of pike perch.

**Sanders, Frank Knight**, an American theologian; born in Batticotta, Ceylon, June 5, 1861; was graduated at Ripon College, Wis., in 1882; studied Semitic languages and Biblical literature at Yale University in 1886-1889; was instructor at Jaffna College, Ceylon, in 1882-1886, and Professor of Biblical Literature at Yale University in 1893-1901. In the latter year he was made Professor of Biblical History and Archæology and dean at the Yale Divinity School.

**Sanderling**, a small gray sand-piper common on sandy beaches in America, Europe, and Asia.

**Sand Flies**, the name of certain flies found in various countries, the

bite of which gives painful swellings.

**San Diego**, city port of entry, and capital of San Diego county, Cal.; on San Diego bay and several railroads; 120 miles S. by E. of Los Angeles; has the second best landlocked harbor on the Pacific coast; contains a Federal Building, Fort Rosecrans, quarantine and naval coaling stations, old San Diego Mission, Coronado Beach, with ostrich farm and botanical gardens, and a Mexican boundary monument; has considerable manufacturing and fishery interests; and is a popular health resort. Pop. (1930) 147,995.

**Sandison, George Henry**, journalist and editor; born 1850; was connected with various newspapers in editorial capacities, and as correspondent, etc.; in 1881 conducted successful crusade for State prison reform, resulting in passage of laws in New York State which were afterward followed by similar legislature in 10 other States. In 1890 became editor of the "Christian Herald."

**Sand Lizard**, a common European lizard, about seven inches long, of which the tail is four. Usual color,



SAND LIZARD.

sandy-brown, with obscure longitudinal bands of a darker hue, line of round black spots on side. The female lays 12 to 14 eggs in the sand, covers them, and leaves them to be hatched by solar heat.

**Sand Martin**, called also the bank martin and bank swallow. It makes its nest in the steep banks of rivers, sand pits, quarries, and sea banks, and deposits four or five white eggs. It breeds in N. latitudes, but goes S. in autumn, returning again in spring.

## Sand Mole

**Sand Mole**, a rodent from the Cape of Good Hope. It is about the size of a wild rabbit, with light grayish-brown fur, rather variable in tint in different individuals. The eyes are very small; external ears wanting; tail short.

**Sandpiper**, a popular name for several wading birds.



FIGHTING SANDPIPER.

**Sandringham**, a Norfolk estate, 3 miles from the sea and  $7\frac{1}{2}$  miles N. N. E. of Lynn, England, comprising over 7,000 acres; was purchased in 1862 by King Edward, then Prince of Wales. The existing mansion was demolished, and the present hall built. Sandringham was the scene of the death of the eldest son of King Edward, the Duke of Clarence (Jan. 14, 1892).

**Sands, Benjamin Franklin**, an American naval officer; born in Baltimore, Md., Feb. 11, 1811; entered the navy in 1828 as midshipman; was commissioned lieutenant in 1840; served in the Mexican War; commissioned captain, 1862; and served with gallantry throughout the Civil War; appointed superintendent of the Naval Observatory, 1867-1873; commissioned rear-admiral, 1871; and retired, 1874. He died in Washington, D. C., June 30, 1883.

## Sand Wasp

**Sands, Henry Berton**, an American surgeon; born in New York city, Sept. 27, 1830. He was associated with Willard Parker from 1860 to 1870; was Demonstrator of Anatomy in the College of Physicians and Surgeons, New York, 1856-1866; Professor of Anatomy, 1869-1870, and from 1870 to his death held the chair of surgery. He died in New York city, Nov. 18, 1888.

**Sands, James Hoban**, an American naval officer; born in Washington, D. C., July 12, 1845; was graduated at the United States Naval Academy in 1863; served in the Civil War with the North Atlantic blockading squadron; was present at the evacuation of Charleston and at the attacks on Fort Fisher. He was assigned to the Indian squadron in 1865, and participated in the skirmish with the savages on the Island of Formosa. In the Spanish-American War in 1898, he served in the North Atlantic patrol squadron; was off Santiago at the time of the surrender of the Spanish army; and joined the expedition to Porto Rico. After the war he became superintendent of the U. S. Naval Academy. He died Oct. 27, 1911.

**Sands, Robert Charles**, an American author; born in Flatbush, Long Island, N. Y., May 11, 1799; in 1824 edited the "Atlantic Magazine," and from 1825 to 1827, with Bryant, the New York "Review"; and from 1827 till his death was on the staff of the "Commercial Advertiser." He also published the "Life and Correspondence of Paul Jones." He died in Hoboken, N. J., Dec. 17, 1832.

**Sandusky**, city, port of entry, and capital of Erie county, O.; on Sandusky bay (Lake Erie) and the Lake Erie & Western railroad; 56 miles W. of Cleveland; has an excellent harbor, extensive lake commerce, and large trade in iron ore, lumber, ice, wines, and fresh fish; manufactures chemicals, glass, cement, wines, lumber products, engines, dynamos, and farm implements; and contains a Federal Building, States Soldiers' and Sailors' Home, and State Fish Hatchery. Pop. (1930) 24,622.

**Sand Wasp**, the common name of a family of fossorial hymenopterous insects, which dig burrows in the sand.



**Sandwich** (so called after John Montagu, 4th Earl of Sandwich, England, who used to have sandwiches brought to him at the gaming table, to enable him to play without stopping), two thin slices of bread, with a slice of meat between them.

**Sandy Hook**, a low beach at the mouth of New York harbor, about 5 miles long, and varying in width from a few hundred feet to  $\frac{3}{4}$  of a mile. There is a beacon light at the very extreme point, but the Sandy Hook lighthouse is  $\frac{3}{4}$  of a mile to the S. The U. S. Government has Fort Hancock and proving grounds here.

**Sandys, George**, an English poet and traveler; born in 1577; died in 1644. He was the seventh son of Archbishop Sandys, and was educated at St. Mary Hall, Oxford. He succeeded his brother as treasurer of the colony of Virginia, and in 1621 came to America. While there, besides establishing iron and ship-building works, he translated Ovid's "Metamorphoses," by which he is chiefly remembered.

**Sanford, Edward T.**, American lawyer and associate justice of the United States Supreme Court by appointment of President Harding, born in Knoxville, Tenn., July 23, 1865. He died March 8, 1930.

**Sanford, Henry Shelton**, an American diplomatist; born in Woodbury, Conn., June 15, 1823; was educated at Trinity College, Hartford, Conn., and at the University of Heidelberg; was secretary of the United States legation in Paris in 1849-1853 and United States minister to Belgium in 1861-1869. In 1877 he took part in the founding of the Independent State of the Kongo, and in 1884, received recognition of its independence by the United States government. He also represented the United States at the Berlin Kongo Conference of 1885-1886, which granted free trade and neutrality to a population of 50,000,000 people, inhabiting 1,000,000 square miles of territory. Mr. Sanford established the city of Sanford, Fla., in 1870. He introduced into that State the culture of the lemon besides that of several other fruits. He died in Heating Springs, Va., May 21, 1891.

**San Francisco**, the most important city of California, and the principal

emporium of the Pacific Coast of America; on San Francisco Bay; 88 miles by rail S. W. of Sacramento. The bay, which is 50 miles long by 5 miles wide, makes one of the grandest harbors in the world. The mean altitude is 130 feet above the sea; area, 46 square miles; pop. (1920) 506,676; (1930) 634,394.

Prior to the earthquake and the resulting great fire of April, 1906, the city was served by an extensive water-works system. The reservoirs had a storage capacity of 100,000,000 gallons, and the consumption averaged 30,000,000 gallons per day. In this emergency, however, the service proved inadequate to the need, largely because the earthquake broke the mains of the water company, and on Jan. 15, 1910, the city by a popular vote authorized the purchase of additional reservoir sites in the Sierras.

The Golden Gate Park, named after the popular name of the entrance to San Francisco Bay, is the most important park in the city, comprising 1,013 acres. It extends from the city to the ocean. About half of it is beautifully laid out in promenades, drives, lawns, etc. It was here that the Midwinter Exposition was held in 1894. The park contains a magnificent conservatory, and monuments of Francis Scott Key, author of "The Star-Spangled Banner," President Garfield, General Halleck, and Thomas Starr King. Hill Park, lying a half mile E. of Golden Gate Park, affords a fine view from its highest point, which is 570 feet above the sea. The Presidio, or Government Military Reservation, extends along the Golden Gate for about 4 miles, and has an area of 1,480 acres.

The principal public buildings are the city hall; the United States Branch Mint; the United States government building; United States Appraiser's Building; the Merchant's Exchange; the Palace Hotel; the First National Bank; the Flood Building; Mercantile Library, containing 78,500 volumes; Odd Fellows' Hall; the Mechanics' Institute, containing 82,000 volumes; the California Market; California Academy of Sciences; Crocker Building, and many others, including magnificent churches, office buildings, and banks.

There were manufacturers in 1925 reported for San Francisco 2,104 plants, employing \$198,164,500 capital, 41,373 wage-earners, paying \$22,792,446 for raw materials and \$60,525,243 in wages, and yielding products of a combined annual value totaling \$399,986,444.

San Francisco has an immense foreign trade, chiefly with the Hawaiian Islands, Central America, Japan, China, and Great Britain. In the fiscal year ended June 30, 1917, the imports of merchandise aggregated in value \$144,027,410, and the exports \$143,202,190. In the year ended June 30, 1915, the value of merchandise imports was \$76,068,028, and of exports, \$81,500,979.

Under the National Banking Act of 1913, San Francisco is the central reserve city of Federal Reserve District No. 12, and on Sept. 12, 1916, there were reported in the city 9 National banks, with \$28,500,000 capital, \$16,685,000 surplus, and \$314,212,000 in resources. The exchanges at the clearing-house here in the year aggregated \$3,186,602,000, an increase in a year of \$603,324,000.

Reports for the school year 1913-14 showed a public school enrollment of 50,686, of whom 41,683 were in average daily attendance; public school buildings, 90; teachers, 1,199. The institutions for higher education were the Law, Dental, and Medical Departments of the University of California; St. Ignatius College; the Cooper Medical College; the James Lick School of Mechanic Arts; Pacific Theological Seminary; the Hopkins Institute of Art; Irving Institute; Sacred Heart College; and near the city at Palo Alto, the Leland Stanford, Jr., University, and at Berkeley, across the bay, the University of California.

As early as 1769 a number of Franciscan fathers established a mission here, and seven years later the Spaniards chose the place for a military post. In 1835 an Englishman erected the first tent on the site of the present city, in Yerba Buena, 3 miles from the mission. A village which soon grew up was united with the mission in 1846. Two years later gold was discovered and by 1850 San Francisco had a population of 25,000. During the latter year a city charter was

received, and in 1856 the county and city were consolidated after vigilance committees had severely repressed crime. On Apr. 18, 1906, severe earthquakes and fires caused great loss of life and property, necessitating rebuilding a large portion of the city. In 1906 an anti-Japanese agitation assumed for a time serious proportions. In 1924 had a really assessed valuation of \$987,873,106 and net debt of \$76,306,000.

**Sanger, Joseph Prentice**, an American military officer; born in Detroit, Mich., May 4, 1840; served through the civil war; Brigadier-General, U. S. V., in 1898, on duty in Cuba; Director of Census in Cuba and Porto Rico in 1899, and of the Philippines in 1901-1902; Brigadier-General, U. S. A., 1902, and Major-General and retired, 1904.

**Sangir Islands**, a group of small islands in the Indian Archipelago, between the N. E. extremity of Celebes and the Philippine isle of Mindanao. Most of them are inhabited and are covered with cocoa palms. Rice, pisang, and sago are cultivated. The islands are all mountainous and partly volcanic. The natives are of the Malay race and profess Christianity. Pop. about 50,000.

**Sangrealis, Sangreal, or Saint Grail.** See GRAIL.

**Sangre de Cristo**, a range of the Rocky Mountains in S. Colorado, on the N. E. boundary of St. Louis Park. Blanca Peak, its highest point, has an altitude of 14,390 feet, and is one of the two highest peaks of Colorado.

**Sangster, Charles**, a Canadian poet; born at Kingston, Ont., in 1822; died in 1893. He was an editor at Amherstburg and Kingston during 15 years, and from 1868-1886 was a Post-Office official at Ottawa.

**Sangster, Margaret Elizabeth (Munson)**, an American poet; born in New Rochelle, N. Y., Feb. 22, 1838. She was editorially connected with "Hearth and Home" and "The Christian Herald"; and in 1889 became editor of "Harper's Bazar." Her writings were graceful and simple in style, and very popular. She died June 4, 1912.

**Sanguinaria**, a genus of plants, of the poppy family. The most interesting species is the puccoon, a native

of North America, often called blood-root, from its containing a red juice.

**Sanhedrim**, or **Sanhedrin**, the supreme national tribunal of the Jews, established at the time of the Maccabees. It consisted of 71 members, and was presided over by the Nasi ("prince"), at whose side stood the Ab-Beth-Din ("father of the tribunal"). Its members belonged to the different classes of society; there were priests, elders, scribes, and others exalted by eminent learning. The presidency was conferred on the high-priest in preference, if he happened to possess the requisite qualities of eminence; otherwise, "he who excels all others in wisdom" was appointed, irrespective of his station. The limits of its jurisdiction are not known with certainty; but there is no doubt that the supreme decision over life and death, the ordeal of a suspected wife, and the like criminal matters were exclusively in its hands. Besides this, however, the regulation of the sacred times and seasons, and many matters connected with the religious ceremonies in general, except the sacerdotal part, which was regulated by a special court of priests, were vested in it.

By degrees the whole internal administration of the commonwealth was vested in this body, and it became necessary to establish minor courts, similarly composed, all over the country, and Jerusalem itself. Thus we hear of two inferior tribunals at Jerusalem, each of them consisting of 23 men, and others consisting of three men only. These courts of 23 men, as well as those of the three men, probably represent only smaller or larger committees chosen from the general body. Two scribes were always present, one registering the condemnatory, the other the exculpatory votes. The mode of procedure was exceedingly complicated; and such was the caution of the court, especially in matters of life and death, that capital punishment was pronounced in the rarest instances only. The Nasi had the supreme direction of the court and convoked it when necessary. He sat at the head, and to his right hand was the seat of the Ab-Beth-Din; in front of them the rest of the members took their places according to their dignity, in a semi-circle.

The court met on extraordinary occasions in the house of the high priest; its general place of assembly, however, was a hall, probably situated at the S. W. corner of one of the courts of the temple. With exception of Sabbath and feast days it met daily. After the destruction of the temple and Jerusalem it finally established itself, after many migrations, in Babylon.

**San José**, city and capital of Santa Clara county, Cal.; on the Guadalupe and Coyote rivers and the Southern Pacific railroad; 51 miles S. of San Francisco; was the capital of the State under its first constitution; is in a great fruit raising and canning section; has large quick-silver mines nearby; manufactures brick, pottery, farm implements, and woolen goods; and contains the University of the Pacific (M. E.), College of Notre Dame, St. Joseph's College, State Normal School, State Asylum for Chronic Insane, Federal Building, and Platt Home. Pop. (1930) 57,651.

**San Juan**, chief city, seaport, and capital of the Territory of Porto Rico; on a small island off the N. coast, connected by bridges with the mainland; is a strongly fortified post; was bombarded by Admiral Sampson during the Spanish-American war (May, 1898); contains the old Government House, Roman Catholic cathedral, bishop's palace, Military Hospital, arsenal, quarters of the superior courts of the island, several educational institutions, and numerous parks and plazas. Pop. (1920) 71,443.

**Sankey, Ira David**, an American evangelist; born in Edinburgh, Pa., Aug. 28, 1840; was associated with the late evangelist, Dwight L. Moody, for some years, attracting and holding the attention of great audiences by singing hymns composed by himself. He died Aug. 13, 1908.

**San Luis de Potosí**, a city of Mexico; capital of the State of the same name; 198 miles N. W. of Mexico, 6,350 feet above sea-level. Pop. (1923) 85,000. The state has an area of 25,316 square miles, is generally fertile, and has rich gold and silver mines. Pop. (Est.) 700,000.

**San Marino**, the smallest republic in Europe, and one of its most an-

cient States; is enclosed by the provinces of Forlì and Pesano and Urbino, of the kingdom of Italy; 9 miles S. W. of Rimini. The legislative power is vested in a Great Council of 60 members, elected for life equally from the ranks of nobles, citizens, and peasants. Two Regents are chosen by this Council every six months, to exercise executive power. A smaller Council consists of 12 members, and is divided into four congresses, each similar to a Cabinet Secretary. This little republic occupies a mountainous site, precipitous on all sides, with intervening dense forests and valleys of fertile land. The town is built round a hermitage, founded in 441, and is accessible by but one road. It is surrounded by great walls and has three forts. Many of the buildings are stately and massive in structure. The inhabitants are principally engaged in agriculture. Area, 38 sq. m.; pop. (1925) 12,952. On Mar. 20, 1906, the U. S. Government ratified a treaty of extradition with San Marino.

**San Martin, Jose de, a Spanish-American general;** born in Yapeyu, Misiones, Argentine Republic, Feb. 25, 1778. He was in the Spanish campaigns against France from 1793 till 1811, attaining the rank of lieutenant-colonel. He resigned from service and sailed for Buenos Ayres in 1812, where he joined the patriot army. An army of invasion was drilled for two years at Mendoza, and then San Martin in command of 4,000 men began, Jan. 17, 1817, his famous march over the Andes, leading his force through the Nepallata Pass, 12,800 feet high. On Feb. 12, 1817, he gained the victory of Chacabuco, which was followed by the capture and occupation of Santiago, Feb. 15. He was defeated on March 19, 1818, at Chancha Rayada, but gained a splendid victory on April 5 at the Malipo, which drove the Spaniards from Chile. He was offered the supreme directorship of Chile, but declined it and began preparations for the invasion of Peru. After much adventurous maneuvering, he captured and occupied Lima, July 9, 1821, and carried Callao through hard fighting. On Aug. 3, San Martin was proclaimed supreme protector of Peru. At this time Bolivar was leading an army S., and the success of the pa-

triot was threatened by civil war. San Martin gave way to his rival, "for the good of the cause." On July 26, 1822, he held an interview with Bolivar, after which he resigned his office to the Peruvian Congress, Sept. 22, leaving Bolivar to complete the independence of Peru. San Martin retired from South American affairs, went to France and lived there in reduced circumstances till his death in Boulogne, France, Aug. 17, 1856.

**San Salvador, a name given by Columbus to the first island he discovered in the New World, Oct. 12, 1492.**

**Sanskrit, the name of the ancient literary language of India.** It forms the extreme branch of the great Indo-Germanic (Indo-European, Aryan) stock of languages, and the one which, thanks to its early literary cultivation (from 1500 B. C.) and grammatical fixation, and its consequent transparency of structure and fullness of form, approaches nearest to the parent language. In some respects, however, the primitive appearance of the Sanskrit, as of the closely allied Iranian or Persian branch, is now generally ascribed to a special Indo-Iranian development, or to a later return to a phonetic phase already outgrown by the parent language at the time of the separation. While it is admitted on all hands that the Aryan dialect out of which the literary language of India has developed can not have been indigenous to the peninsula, but must have been introduced from the N. E., there is still considerable difference of opinion as to the original home of the primitive Aryan community—whether it is to be sought for in Asia, as used to be universally believed till recent years, or whether, as many scholars are now inclined to think, it was from some part of Europe that the Asiatic Aryans originally came. On entering India, the Aryan tribes found the country occupied by people of different races; but, favored by physical and intellectual superiority, they gradually succeeded in extending their sway, as well as their language, and their social and religious institutions, over the whole of Northern India.

**San Stefano, Treaty of, a treaty which put an end to the Russo-Turkish War; concluded March 3, 1878, at**

San Stefano, a town of W. Constantinople and a port of the Sea of Marmora. By its terms Bulgaria was to become a principality, and Rumania, Servia, and Montenegro, were recognized as independent. Russia was to receive a war indemnity of 300,000,000 roubles, and the Dobrudja, Kars, Batum, and other possessions. The congress held at Berlin, in June and July, 1878, greatly altered the provisions of this treaty, effecting peace on somewhat more moderate terms.

**Santa Ana**, a tribe of North American Indians that live in a pueblo in North Central New Mexico, on the Rio Jemez, a tributary of the Rio Grande. The Spanish applied this name to the mission established at this pueblo, whose native name was Tamaya. This village is one of several in New Mexico occupied by the Keresan stock of Indians, under different names.

**Santa Ana, or Santa Anna, Antonio Lopez de**, a Mexican president; born in Talaha, Mexico, Feb. 21, 1795. He took a prominent part in the expulsion of the Spaniards from Mexico, and proclaimed the Mexican Republic in 1822. He was in the front during all the Mexican troubles till 1833, when he became president. In 1836 he was defeated and taken prisoner by the Texans, but returned the following year. He was again president in 1846 and commanded in the war with the United States (1846-1848). After General Scott's occupation of the city of Mexico, in September, 1847, he resigned and left the country, but was president in 1853-1855. He died in the City of Mexico, June 21, 1876.

**Santa Barbara Islands**, a group of islands off the coast of California, extending about 175 miles. They lie opposite Santa Barbara, Los Angeles, and San Diego Counties, at a distance varying from 20 to 65 miles. They consist of San Miguel, Santa Rosa, Santa Cruz, Anacape, Santa Barbara, Santa Catalina, San Clemente, San Nicolas, and San Juan.

**Santa Fé**, a city, capital of the State of New Mexico, and county seat of Santa Fé co.; on Santa Fé creek and several railroads; 20 miles E. of the Rio Grande, 275 miles S. W. of E-68

Denver, Colo. It is in a mining, farming, and stock-raising region, and contains a U. S. Government Building, State Capitol of cream sandstone, State University, State School for the Deaf and Dumb, the noted Romona Industrial School for Indian Girls, and several hospitals. When first visited by the Spaniards, about 1542, the city was a populous Indian pueblo. Pop. (1930) 11,176.

**Santiago**, the capital of the Republic of Chile and of the province of the same name, beautifully situated at the foot of the Andes, 112 miles E. of Valparaiso. Owing to the prevalence of earthquakes the houses are mostly of one story, and generally occupy a large space of ground, having gardens and patios or courts in the interior. The city was founded in 1541. It is the largest city on the W. coast of South America. Pop. (1920) 507,296.

**Santiago de Cuba**, a city, seaport, and capital of the province of the same name, Cuba; on a beautiful harbor opening through a narrow pass into the Caribbean Sea. It was made famous in the Spanish-American War by the splendid victory achieved by the American fleet outside of its harbor, and the later occupation of the city by American troops on the surrender of the Spanish army. The Spaniards claim that it is the oldest city in North America. It was founded in 1514 by Don Velasquez, the conqueror; is built on the side of a hill 160 feet above the bay and its harbor is one of the best along the American continent, but extremely difficult of access owing to the narrowness of its entrance.

Like Havana and San Juan, Santiago has its Castle Morro, built by the old Spanish warrior, Pedro de la Rocca, then governor of the province, about the year 1640, on the mountain to the right of the entrance. The word Morro means "overhanging lip," and all three castles mentioned are erected on extreme points of land commanding harbor approaches. That at Santiago is certainly the most picturesque; but looking at it one would scarcely credit it as possessing much effectiveness when pitted against modern men-of-war. From the point of view of the artist, however, it is per-



fect. Though the guns are chiefly of an old-fashioned type, pointing directly toward the sea, they are capable of being used with considerable effect against vessels attempting to force an entrance.

The neighborhood of Santiago is particularly rich in minerals, especially iron and copper; but the Spaniards have themselves done little to develop the mining industry. This has been left to American enterprise.

On the assumption of control by the American government, July 17, 1899, of that portion of the province of Santiago included in the surrendered territory, industries were practically at a standstill. In the rural districts all industries were at an end. The estates, almost without exception, had been destroyed, and no work was being done. Such foodstuffs as were being produced in the territory were the work of certain men of the Cuban army who were detailed for this purpose, in order to furnish such corn and vegetables as it was possible to secure for their friends in arms.

Their cane fields had been largely destroyed and the cane had become overgrown with weeds, brush, etc. Those individuals who were engaged in the raising of cattle had lost everything and it was difficult to find a cow or an ox. Horses were few and in wretched condition. Mining had ceased; all industries were practically dead. Every man who could manage it had a tiny garden, which furnished very limited subsistence. This he supplemented with such wild fruits as he could gather.

In the towns the effect of reconcentration was shown by large crowds of women and children and old men who were practically starving. They were thin, pale, and barely able to drag themselves about. The merchants and a few planters were the only prosperous people in the province. The stores all seemed to have a fairly good stock of goods, and to have been protected during the war. Their transactions at first were extremely limited, as people were without money or other means of barter. Hospitals were horribly overcrowded and practically without supplies of either food, medicine, or clothing. The same was true of the charitable institutions for children and old people. In the country

towns a condition existed bordering closely on starvation. There was no work and no one with money sufficient to start in on work of any consequence, except a few large planters already referred to. Spanish money was universally in circulation, silver being worth about 50 cents on the dollar and the centen \$5. The amount of money in circulation was extremely limited. Wages were at that time from 60 to 80 cents a day, Spanish money, for ordinary laborers, and from \$1 up to \$2.50, Spanish, for skilled mechanics. Such railroads as existed in the province were largely crippled by the destruction of bridges and rolling stock, and greatly in need of repairs, which had not been attended to during the war. On the different country roads and highways the bridges had been entirely destroyed.

The question of reaching the people throughout the province was a somewhat difficult one. It was solved, however, by sending the food to all the seaport towns and to such interior towns as could be reached with pack trains. Couriers were also sent through the country to notify the people where it could be found. Medicines and clothing were also issued in as large amounts as possible. Garrisons were sent to all important points with the purpose of restoring order and protecting those who wished to work, and the reestablishing of the rural guard was commenced for the purpose of furnishing proper police protection in the interior districts. Medical officers were sent to the interior with trains loaded with supplies, and with instructions to do all that they could to relieve the sick and prevent the spread of disease. Strict orders were given to the rural and municipal police to treat robbers and others severely. Comparatively little disorder existed. The good behavior of the people was quite remarkable under the circumstances. Customs officers were appointed and every port of any consequence was soon put in charge of a collector, assisted by a force of native clerks, most of whom had had previous experience in the custom house under Spanish rule. The courts were gradually reorganized and supplied with necessary personnel and material. The prisons and jails were

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carefully examined, and all political and military prisoners were, as a rule, released. Rations were given freely to those unable to work; to those having families able to work, they were given in payment only for labor. The amount of rations issued was very large. The civil government was gradually established, mayors and municipal officers being appointed for the various municipalities. These officers were always nominated by a committee of the best people and were efficient as a class. Such public work as the American authorities had means to undertake, was undertaken, not only for the purpose of public government, but for the sake of giving men work, with the proceeds of which to support themselves and families. Lighthouses were reestablished, a new one built at Guantanamo, and the one at Santiago put in working condition. Commanding officers in all parts of the island were busily engaged in carrying out all possible sanitary and administrative reforms. Schools were established in the city of Santiago and in the province, and both city and province are now assuming their rightful agricultural, industrial, and commercial conditions. Pop. (1928) 48,500.

**Santo Domingo**, a republic occupying the E. part of the island of Haiti, one of the Greater Antilles, West Indies. There are several mountain ranges running E. and W., between which are large and fertile plains. The coast is irregular, having a number of deep indentations which afford excellent harbors. The climate on the coast is hot and in some sections unhealthy. In the interior it varies, being mild and salubrious in the elevated districts. Area, 18,045 square miles. Pop. (1921) 897,405.

The population consists largely of a mixed race of the aborigines and the first Spanish inhabitants, and of negroes and mulattoes, the former being less in number. There are a considerable number of whites descended from Europeans. Owing to the influence of the latter the Spanish language prevails. French and English are spoken in the towns. In more recent years many Cubans have settled in Santo Domingo, and their immigration has been encouraged.

The State religion is Roman Catho-

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lic, though other forms of worship with certain restrictions are tolerated.

Santo Domingo is governed under a constitution. The legislative power is vested in a national congress of 22 deputies, who are elected by popular vote. The executive power rests in a president, elected for a term of four years, and assisted by a cabinet of five ministers. A governor appointed by the president presides over each province and district.

The revenue is mostly derived from duties on imports and exports. In 1893 the custom house was taken in charge by the American Santo Domingo Improvement Company, which agreed to pay the interest on the foreign debt from March 1, of that year, to supply \$90,000 per month for the budget, and to build with the help of the government, the railroad from Porto Plata to Santiago.

The principal occupation is that of sugar growing. The production of coffee, cocoa, bananas, and tobacco, is on the increase, and important industries are connected with forestry. In the S. and W. of the country extensive factories and sugar plantations are in operation. The commerce of the country is small. The trade is mainly with the United States, England, Spain, Germany, and France. The exports in 1927 had a value of \$31,178,765, chiefly to the United States, and the imports, \$27,784,013, also chiefly from the United States. In 1928 the revenue was \$12,565,400; the expenditure, \$12,172,829; and the debt, in U. S. currency, \$15,000,000.

The early history of this portion of the island, which remained Spanish when the W. part was ceded to France in 1697, and which was united with the neighboring State in 1795-1808, and in 1822-1843, properly belongs to that of Haiti. In 1843 it assumed a separate standing as the Santo Domingo republic, the anarchy and misrule of which it exchanged in 1861 for the despotism of its former masters. But the harsh Spanish rule brought on a revolt in 1863. The Spaniards were driven out by a force headed by Jose Maria Cabral in 1865, and the constitution of 1844, with a few changes, was reaffirmed. In November, 1869, Baez, the president, signed with President Grant a treaty

for annexation to the United States, but ratification was refused by the U. S. Senate. In 1907 the United States took charge of the collection of customs and the payment of the foreign debt, owing to the unsettled condition of affairs. On March 19, 1924, Gen. Horacio Vasquez was elected President for four years. On July 12 he was inaugurated, and simultaneously the evacuation of the military forces of the United States followed.

**Santos-Dumont**, a French aeronaut; born in Sao Paulo, Brazil, July 20, 1873; was educated largely in France. Interested in the problem of aerial navigation he devoted his time and fortune to the solution of the question. In 1900 he made several partly successful attempts to fly with his dirigible balloon; in 1901 he won the Deutsch prize of \$20,000 for navigating a dirigible balloon, and in 1906, the Deutsch-Archdeacon prize of \$10,000 for navigating an aeroplane unsupported by gas.

**Sap**, the nutrimental fluid which circulates in plants. As it rises in the stem it is of a watery nature and contains the various inorganic matters absorbed by the roots, also some sugar, dextrine, and other organic substances which it has dissolved in its upward course. In its passage to the leaves it becomes more and more altered from the state in which it was absorbed by the roots; but when it reaches the leaves it is still unfitted for the requirements of the plant, and is hence termed crude sap. Through the action of the light and air it undergoes important changes in the leaves and other green parts, and becomes adapted for the nourishment of the plant. In this state it is termed elaborated sap.

**Sapajou**, the name generally given to a group of South American prehensile-tailed monkeys, including 15 or 16 species. One of the most common species is the weeper. They are small in size, playful in disposition, leading a gregarious life, and feeding chiefly on fruits and insects.

**Sapindaceæ**, soapworts; trees, shrubs, twining and with tendrils, rarely climbing herbs; found in South America, in India, and various tropical countries. Known genera, 50; species, 380.

**Sapindus**, the soap tree; trees or shrubs, with equally pinnate leaves, and panicles of white or greenish flowers. The acrid fruits placed in water, form a lather used in lieu of soap in the West Indies. If pounded and thrown into water they intoxicate fish.

**Sapphire**, a gem excelled in value by no precious stone except the diamond, and regarded as a variety of corundum, highly transparent and brilliant. It is sometimes colorless or nearly so. It more frequently exhibits its exquisite color, generally a bright red (i. e., the ruby) or a beautiful blue—the latter being that commonly called sapphire. Purplish or greenish color indicates a flaw; and usual defects are clouds, milky spots, flakes, or stripes. It is found crystallized, usually in six-sided prisms, terminated by six-sided pyramids; it is sometimes found imbedded in gneiss, but more frequently occurs in alluvial soils. It occurs in Bohemia and Saxony, but European sapphires are of no commercial importance. The finest are found in Ceylon; Kashmir and Burma also produce fine specimens; and sapphires are found in Victoria, New South Wales, and parts of the United States. The value depends on quality more than on size, and does not increase with the size as does that of the ruby.

**Sappho**, a renowned Greek lyric poet; born in the island of Lesbos about 612 B. C. She wrote nine books of poems, but besides some small fragments of her poems we have in complete form only a "Hymn to Aphrodite" and an "Ode to a Beautiful Girl." She was called "The Tenth Muse." She leaped to death from the Lencadian rock, owing to her unrequited love for Phaon.

**Saprophytic Plants**, plants that feed on decaying organic matter. Saprophytes may obtain their nourishment and especially their carbon compounds either from the remains of dead organisms or from organic compounds formed by living organisms. The Fungi that live on the bark of trees and the leafsoil of forests and meadows (e. g., mushrooms) are examples of the former case; those that feed on the juice of fruits and sugary solutions (e. g., molds and yeasts) of the latter case. Examples of sapro-

phytes are found in the Phanerogams, the Fungi, and the Bacteria.

**Sapsucker**, the popular American name of several small woodpeckers.

**Sapucaia Nuts**, the seed of *Lecythis ollaria* and *L. zabucajo* trees, plentiful in the forests of the N. of Brazil. The fruit is urn-shaped, as large as a child's head, and opens by a lid which falls off. Each fruit contains a number of seeds or nuts, as in the case of the allied Brazil nut; but the flavor is finer; form, oval; somewhat pointed at both ends, and slightly bent in opposite directions.

**Sarabat**. See **PACTOLUS**.

**Saracen**, an Arabian or other Muslim of the early and proselytizing period; a propagator of Mohammedanism in countries lying to the W. of Arabia. By mediæval writers the term was variously employed to designate the Arabs generally, the Mohammedans of Syria and Palestine, or the Arab Berber races of Northern Africa. At a later time it was also applied to any infidel nation against which crusades were preached, such as the Turks.

**Saracenic Architecture**, the style adopted by the followers of Mahomet in building their mosques, palaces, and tombs. Originally the Arabs possessed no distinctive architectural style, and the style which they at length made their own was developed by architects belonging to the countries which they had conquered. This style is chiefly represented in Egypt, Persia, Spain, Turkey, and India, but the Saracenic architecture of Spain is generally called by the distinctive name of Moorish. The most prominent features of the style are the dome, the minaret, and the pointed arch. In Egypt the Saracenic art began with the mosque which Amru erected at Old Cairo in the 21st year of the Hegira (A. D. 642). Subsequently repaired and altered, it may now be considered as a good specimen of Moslem architectural art when freed from Christian influence. But the perfected Saracenic art dates from the building of a mosque at Cairo by Ibn Tootoon in A. D. 876.

**Saragossa, or Zaragoza**, a city of Spain, in Aragon, capital of the province of the same name, about 200 miles by rail N. E. of Madrid, in a fertile

plain irrigated by the Ebro. The principal edifices are the two cathedrals, La Seo and El Pilar. The former is the metropolitan archiepiscopal church, and is mainly Gothic in style, dating from the 12th century; the latter is a huge unattractive building begun in 1677. The chief manufactures are silk, woolen cloth, leather, soap, hats, etc. Pop. (1922) 143,755.

**Sarajevo, Sarayevo, or Bosna-Serai**, a town and capital of Bosnia, Jugo-Slavia, on the Milyatska river, 122 miles S. of Belgrade. It is a flourishing trade center, has important manufactures, and contains a Roman Catholic cathedral, a noted museum of antiquities and a 16th century mosque. It was here that Archduke Francis Ferdinand, heir to the Austro-Hungarian throne, and his wife, the Duchess of Hohenberg, were assassinated on June 28, 1914. The crime was charged to Servian plotters, and was the initial cause of the World War. Pop. (1921) 66,500.

**Saratov**, a city of Russia, on the Volga; 500 miles S. E. of Moscow. It is a city of broad streets and fine squares, and stands on terraces rising from the river. There are nearly 39 churches; a handsome new cathedral (1825), an old cathedral (1697), and Radistcheff's Museum, sheltering a fine art gallery and a library. Manufactures of brandy, liquors, flour, oil, and tobacco are carried on. The city was pillaged by Pugatcheff in 1774 and suffered severely from fire several times in the 19th century. Pop. (1926) 215,369.

**Saratoga, Battles of**, in the Revolutionary War, two battles fought 12 miles E. of Saratoga Springs, N. Y. Burgoyne led the British in the first, while the Americans were under command of Gates, who had Morgan and Arnold as subordinates. The fight on Sept. 19, 1777, was indecisive. On Oct. 7, 1777, the Americans achieved a victory over the British, and the result was the surrender of Burgoyne and his army, numbering 5,752 men, Oct. 17, 1777. These contests are sometimes called in history the battles of Stillwater and Bemis' Heights. The American victory frustrated the British plan for cutting off New England from the other States, enlisted the

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help of France, altered the policy of Parliament and the King and saved the cause of the patriots. Creasy enumerates it in his "Fifteen Decisive Battles of the World."

**Saratoga Springs**, a city in Saratoga co., N. Y., 38 miles N. of Albany. Besides being one of the most fashionable summer resorts in the world, Saratoga is visited by many persons for its medicinal advantages. Here are about 30 mineral springs, some of which are of great celebrity. In 1909 the Legislature took steps to convert the entire mineral tract into a State reservation. Population (1930) 13,169.

**Sarawak**, a State of Borneo, extending from Cape Datto on the W. to the Samarahan river on the E. Area, about 50,000 square miles. Coast line about 400 miles. The aboriginal inhabitants, called Dyaks, consist of various wild tribes who in 1844 took for their sovereign an Englishman, Sir James Brooke, through whom the country is chiefly known. Pop. est., 600,000. Capital, Kuching.

In 1902 the Rajah of Sarawak sent an expedition of about ten thousand men to punish the Dyaks of the interior for hostile incursions into his dominions. The expedition proceeded in boats, but before it had gone far a frightful plague spread among the men, destroying almost 9,000 of them.

**Sarcey, Francisque**, a French author; born in Dourdan, France, Oct. 8, 1828. As dramatic critic for Paris journals, he was highly esteemed for his independence of judgment and his wide acquaintance with dramatic literature and the history of the stage. He published: "History of the Siege of Paris," which in its first year reached the 30th edition; "The Word and the Thing," philosophical conversations (1862); "Etienne Moret," a semi-autobiographical story (1875); "Recollections of Youth" (1884); "Recollections of Mature Age" (1892); "The Theater" (1893), etc. He died May 15, 1899.

**Sarcophagus**, plural **Sarcophagi**, a kind of stone used among the Greeks for making coffins, and so called be-

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cause it was believed to have the property of consuming the flesh of dead bodies deposited in it within a few weeks.

Hence a coffin or tomb of stone; a kind of stone chest used for containing a dead body. In modern times stone coffins are occasionally used for royal or distinguished persons.

**Sardanapalus**, the name of several Princes of Assyria, the most celebrated of whom was the last sovereign of the first Assyrian empire. His reign dates from 836 to 817 B. C., when he was dethroned by Arbaces and Belesis, at the head of a revolt of the Medes, Persians, and Babylonians. In the last extremity, Sardanapalus, who had withstood a siege for three years in Nineveh, placed himself, his treasures, his wives, and his eunuchs on a funeral pile, which he fired with his own hand. He had ceased to exist when the city was taken, and that event was followed by the dismemberment of the Assyrian empire. The above date is only an approximation to the true one, as authorities vary.

**Sardes**, or **Sardis**, anciently a city of Asia Minor, capital of Lydia, in a fertile plain between the N. base of Mt. Tmolus and the river Hermus, about 60 miles E. N. E. of Smyrna. Through its *agora*, or market-place, flowed the Pactolus, tributary of the Hermus. The city is mentioned first by Æschylus. It was taken by the Cimmerians, in the reign of King Ardys (B. C. 680-631). In the reign of Croesus, the last Lydian king, Sardes attained its highest prosperity. It became the residence of the Persian satraps after the overthrow of the Lydian monarchy. The Athenians burned it B. C. 503, and it afterward passed under the Romans, and was the seat of a separate provincial government. It was the seat of one of the Seven Churches mentioned in the Book of Revelation.—**SART**, the modern Sardes, is a poor village, worthy of mention only for the ruins of the ancient city in the vicinity.

**Sardine**, a name applied to several kinds of small fish, the true Mediterranean sardine. The fishing season begins early in June, and is now suc-



cessful in places along the Atlantic coast and on Puget Sound. In the United States an extensive industry is carried on, especially on the New England coast, in the way of preserving small fish such as smelts, which are sold under the name of sardines.

**Sardinia**, an island of Italy, after Sicily the largest in the Mediterranean; 135 miles W. of the mouth of the Tiber, and immediately S. of Corsica, being separated from it by the Strait of Bonifacio,  $7\frac{1}{2}$  miles wide; area, 9,299 square miles.

Sardinia is in nearly all respects a backward island. It has fine natural resources — fertile soil, valuable mines, extensive forests, rich fisheries, and excellent facilities for manufacturing industry. But owing to the old-fashioned conservatism of the people, their apathy, their primitive methods of agriculture, lack of enterprise and capital, and want of means of communication and long years of neglect, if not inefficient government, its resources are by no means developed to the extent they could be; many lucrative industries are in the hands of foreigners, others are neglected by the Sardes, and those that they do carry on are often carried on in a half-hearted manner and with obsolete methods. Of the total area about one-third is arable land, one-third pasture, and nearly one-third (28 per cent.) forest. The first place among the natural resources is taken by the agricultural products. The principal produce is wheat, barley, beans, potatoes, wine (21,500,000 gallons per annum), olive oil (1,500,000 gallons), oranges, lemons, tobacco, flax and hemp, cheese, butter, and wool. The breeding of horses is an important industry; and large numbers of cattle, sheep, swine, and goats are kept. The growing of fruits and the breeding of the domestic animals are both carefully attended to, and the products of both industries are improving; but the only improvement in the management of the soil is the drainage of the marshes by the government and private individuals.

Besides being in ancient times the granary of Rome, Sardinia was renowned for its mineral wealth. Iron, copper, lead, zinc, antimony, manganese, and lignite exist. Granite, mar-

ble, and clay for pottery are quarried. Salt is manufactured from sea water, chiefly by convicts of Cagliari. The mines are mostly situated in the S. W. in the neighborhood of Iglesias. The center and N. of the island are chiefly covered with forests, though they are being all too rapidly diminished. The commonest as well as the most valuable trees are the oak, ilex, cork, and wild olive, which yield timber, cork bark for tanning, acorns, and charcoal to the annual value of close on \$1,500,000. It formerly was a part of the kingdom of Sardinia; but now is a Department or Province of Italy. Pop. (1921) 866,352.

**Sardis**, See SARDES.

**Sardou, Victorien**, a French dramatist; born in Paris, Sept. 7, 1831; elected to the Academy in 1877; chief works: "Piccolino," "Our Intimates," "Don Quixote," "Daniel Rochat," "Fedora," "Uncle Sam," "La Tosca," "Cleopatra," "Thermidor," "Madame Sans-Gêne," "Mabelle," and "Pamela." He died Nov. 8, 1908.

**Sargasso Sea**, a name applied to large areas of the ocean covered with floating seaweed, *Sargassum bacciferum*. The best known Sargasso Sea lies in the North Atlantic Ocean, between the Azores and Antilles, its position being determined by the central whirl of the Gulf stream. It was noticed by Columbus, who recorded on his first voyage of discovery (1492) that his whole course was through masses of these weeds, from Sept. 16 to Oct. 12. There is a smaller Sargasso Sea off the coast of Lower California, in the Pacific Ocean. Another lies in the Antarctic waters.

**Sargent, Aaron A.**, an American diplomatist; born in Newburyport, Mass., Sept. 28, 1827. He became district attorney of Nevada in 1856; was vice-president of the Republican National Convention in 1860; served several terms in Congress; was for six years a member of the United States Senate; and in 1882 was appointed United States minister to Germany by President Garfield. He died in San Francisco, Cal., Aug. 14, 1887.

**Sargent, Charles Sprague**, an American arboriculturist; born in Boston, Mass., April 24, 1841. He was director of the Botanic Garden and

Arboretum (1872-1878), and Professor of Arboriculture at Harvard after 1878. He wrote many authoritative reports and books.

**Sargent, Epes**, an American author; born in Gloucester, Mass., Sept. 27, 1813. His works include a "Life of Henry Clay," "Songs of the Sea," and "A Life on the Ocean Wave" are the most popular of his verses. His "Cyclopædia of English and American Poetry" was published in 1883. He died in Boston, Dec. 31, 1880.

**Sargent, Herbert Howland**, an American military officer; born in Carlinville, Ill., Sept. 29, 1858; was graduated at the United States Military Academy in 1883 and assigned to frontier duty. At the breaking out of the Spanish-American War in 1898, he was first engaged in organizing volunteer troops, but was early sent to Santiago, Cuba; thence to Guantanamo in 1899; and back again to the United States in May of that year. In July, 1899, he was ordered to Luzon, where he participated in several engagements with the insurgents, and commanded the attacking forces at the battle of San Mateo. In June, 1900, he was appointed judge advocate of the department of S. Luzon.

**Sargent, James**, an American inventor; born in Chester, Vt., Dec. 5, 1824; became a partner in the Yale & Greenleaf Lock Co., in 1857; patented and began the manufacture of a burglar-proof lock in Rochester, N. Y., in 1865, and subsequently invented and placed on the market many varieties of locks. He invented the glass enameled steel tanks and vacuum pumps used by the Pfaudler Vacuum Fermentation Co.; the automatic semaphore railroad signals, and in 1873 patented the time locks which bear his name. He died in 1910.

**Sargent, John Osborne**, an American lawyer; born in Gloucester, Mass., Sept. 20, 1811; was graduated at Harvard University in 1830. Later with Alexander C. Bullitt he founded the "Republic," in which he opposed both the Secession and Abolition parties. In 1861-1873 he lived abroad, but later returned to New York city. His publications include "Lectures on the Late Improvements in Steam Navigation and Arts of Naval Warfare," etc. He died Dec. 28, 1891.

**Sargent, John Singer**, an American artist; born in Florence, Italy, in 1856; took a medal of honor at the Paris Exposition in 1889; and was elected an academicien of the Royal Academy, England, in 1891, and of the National Academy of Design in New York in 1897. His works include figure pieces, and numerous sketches, ideal figures, etc. His death occurred in 1925.

**Sarmatians**, a people of supposed Asiatic race, who in the time of the Romans occupied the vast region between the Black, Baltic, and Caspian Seas. They were a nomadic race, whose women went to war like the men, and they were said by tradition to be descended from the Amazons by Scythian fathers. Sarmatia coincided in part with Scythia, but whether the people were of the same race is doubtful.

**Sarmiento, Domingo Faustino** a South American diplomat; born in San Juan, Argentina, Feb. 15, 1811. He was Minister of Public Instruction in 1860, Minister of the Interior in 1861, and while minister to the United States was elected president of the republic (1868). During 1845-1847 he visited Europe and the United States to study the system of primary schools. Died in 1888.

**Sarnia**, city, port of entry, and capital of Lambton county, Ontario, Canada; on the St. Clair river and the Grand Trunk and other railroads; opposite Port Huron, Mich.; is the E. terminus of the St. Clair tunnel; is in a grain-growing section; and has a large oil refinery and manufactories of lumber, leather goods, farm implements, stoves, and carriages and wagons. Pop. (1930 Est.) 18,500.

**Sarpi, Pietro** (surnamed Servita), better known by his monastic appellation, Fra Paolo; an Italian historian; born in Venice, Aug. 14, 1552. embraced the monastic life, and took the vows in the religious order of the Servites in 1565. Five years later the Duke of Mantua made him his court theologian; but he was soon after summoned to be Professor of Philosophy in the Servite monastery at Venice, and there he remained all the rest of his life. In the dispute between the republic of Venice and Paul V. on the subject of clerical immunities

Sarpi stepped forward as the valiant champion of the republic and of freedom of thought. On the repeal (1607) of the edict of excommunication launched against Venice, Sarpi was summoned to Rome to account for his conduct. He refused to obey, and was excommunicated as contumacious; and an attempt was made on his life by a band of assassins. He afterward confined himself within his monastery, where he wrote "History of the Council of Trent," a "History of the Interdict," and other works.

**Sarrail, General Maurice**, was born at Carcassonne, April 6, 1856, and died March 23, 1929. He was noted as one of the greatest military geniuses that France has ever produced. During the World War he was given command of the Third Army defending the Verdun sector during the battle of the Marne, and for the courage that he displayed in this decisive victory he was rewarded with the Military Medal and citation.

**Sarsia**, a genus of coelenterate animals, so named after the Norwegian naturalist, Sars; born in 1805; died in 1869. They belong to the Medusidae or jelly-fishes, and perhaps are more properly regarded as the floating reproductive buds or gonophores of fixed zoophytes.

**Sartain, John**, an American artist; born in London, England, Oct. 24, 1808; came to the United States in 1830, and was one of the first to introduce mezzotint engraving. He had charge of the art department at the Philadelphia Centennial Exposition. He died in Philadelphia, Pa., Oct. 25, 1897.

**Sarti, Giuseppe**, an Italian musical composer; born in Faenza, Italy, Dec. 1, 1729. The success of two operas, "Pompey in Armenia" and "The Shepherd King" brought him a royal invitation to Copenhagen in 1753; and there he remained till 1775. After his return to Italy he was successively director of the conservatory at Venice, and chapel master of Milan cathedral. During this period he composed some of his most successful operas. In 1784 Catharine II invited him to St. Petersburg. He died in Berlin, July 28, 1802.

**Sarto, Andrea del**, one of the most distinguished painters of the 16th century; born near Florence, Italy, July 16, 1487. He is best known in galleries by his "Holy Families." He was highly distinguished for his excellence in fresco, and it was in this form of art that his naturalness of design, fineness of color, and careful execution became most apparent. He died of the plague in Florence, Jan. 22, 1531.

**Sasin**, the common Indian antelope, female destitute of horns, those of the male spiral, wrinkled at the base, annulated in the middle and smooth at the tip; head small, body light, legs long and slender; adult males dark above, white beneath, the nose, lips, and a circle round each eye white; small brushes of hair on the knees; females and young males under three years old tawny above, white beneath, with a light silvery band along the sides.

**Saskatchewan**, a province of Canada, admitted Sept. 1, 1905; formed from the former Northwest Territorial districts of Saskatchewan, Assiniboia, and the E. half of Athabasca; area 251,700 square miles; pop. 882,000; capital, Regina; named from the Saskatchewan River, navigable throughout the province and by Lake Winnipeg, giving communication with the South. The river also provides irrigating facilities for the rolling prairies which slope to the east interspersed with occasional hills. The sources of the Churchill and Nelson rivers flowing to Hudson Bay, are also in the province. Pine and other forests cover the northeast. The soil is rich, and farming and ranching are profitably carried on. The advantages offered by the Canadian Pacific Railroad are creating a steady stream of immigrants and settlers. The Dominion Govt. controls the public lands, paying an annual allowance to the Provincial Govt. represented by a Lieut.-Gov. and responsible ministry.

**Saskatoon**, a city in the province of Saskatchewan, Canada, located on the South Saskatchewan River. Contains stockyards, iron works, box factories, creameries, etc. Pop. (1930 est.) 50,000.

**Sassafras**, in botany, a genus of plants. One kind is a large tree with yellowish flowers, growing in the United States.

**Sassanidae**, a Persian dynasty of kings, which succeeded the Parthian dynasty of the Arsacidae, and reigned from 226 B. C. to about A. D. 636. The dynasty began with Ardishir Babigan, and owes its name to the grandfather of that prince, named Sassan.

**Satellite**, a subordinate attendant; an obsequious or subservient follower. Hence, in astronomy, a secondary planet revolving around a primary one. The moon is satellite to the earth. With it there are 21 satellites in the solar system. Mars has two, Jupiter five, Saturn eight, Uranus four, and Neptune one.

**Satin**, a silken fabric with an over-shot woof and a highly finished surface. The woof is coarse, and hidden underneath the warp, which forms the surface. The warp is of organzine, the weft of tram. In a full satin twill there is an interval of 15 threads.

**Satin Spar**, in mineralogy, a finely fibrous variety of gypsum, with a pearly luster when polished; also a fibrous variety of aragonite, giving a satin like aspect when polished; distinguished from the gypseous mineral by its greater hardness and its effervescence with acids.

**Satin Wood**, an ornamental cabinetwood from the West and East Indies.

**Satire**, keenness and severity of remark; sarcasm; trenchant wit; biting ridicule; incisive humor; pungent irony; denunciation and exposure to derision or reprobation. In literature, the representation of follies or vices in a ridiculous form, either in discourse or dramatic action.

**Satolli, Francis**, a Roman Catholic delegate; born in Merciano, Perugia, Italy, July 21, 1831; was educated for the Church; appointed Professor of Dogmatic Theology at Urban College of the Propaganda, Rome; and was made archbishop in June, 1888. He was created president of the Academy of Noble Ecclesiastics; represented the Pope at the centenary of the Roman Catholic hierarchy in the United States in 1889; and was appointed the first apostolic delegate to

the United States in 1893. He returned to Rome, Italy, in 1896, and died Jan. 8, 1910.

**Satsuma**, a province of the island of Kiushiu, in the S. part of Japan. In early feudal times the lords held a large part of Kiushiu, but their territory was greatly reduced in the 16th century, though early in the 17th century they secured control of the Liu-Kiu Islands. The efforts of the government to suppress the attempts of the more advanced leaders to introduce Western civilization led indirectly to the difficulty with Great Britain 1863, and to the great revolution of 1868. The people of Satsuma were prominent in the movement which led to the overthrow of the feudal system 1872. The famous decorated pottery known as Satsuma ware has nearly all been made by Koreans.

**Satterlee, Henry Yates**, an American clergyman; born in New York city, Jan. 11, 1843; was graduated at Columbia University in 1863 and was ordained in the Protestant Episcopal Church in 1867. In 1896 he was consecrated Bishop of Washington. He died Feb. 22, 1908.

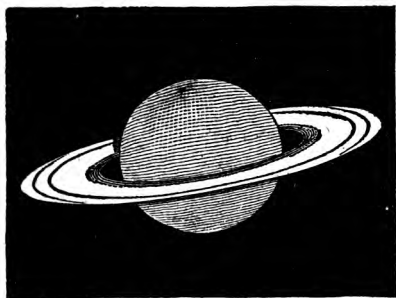
**Satterlee, Herbert Livingston**, an American lawyer; born in New York city, Oct. 31, 1863; was graduated at Columbia University in 1883 and admitted to the bar in 1885. He served as William M. Evart's private secretary in 1886-87; was lieutenant U. S. N. and chief of Capt. J. R. Bartlett's staff during the Spanish-American War; and was Assistant Secretary of the Navy in 1908-9.

**Saturday**, for Saturn, and daeg, a day—the day presided over by the planet Saturn, the seventh or last day of the week; the day of the Jewish Sabbath.

**Saturn**, in mythology, the youngest son of Cœlus (Uranus) and Gaia, the goddess of the earth. Being banished by Jupiter from heaven, he fled to Latium, and was received by Janus, King of Italy, who made him his partner on the throne. Saturn occupied himself in softening the barbarous manners of the people of Italy, and in teaching them agriculture and the useful and liberal arts. His reign there was so mild and beneficent that it has long been called the Golden Age,

to intimate the happiness and tranquillity which the earth then enjoyed. He is generally represented as an old man bent through age and infirmity, holding a scythe in his right hand. His temple was the State treasury.

**Saturn**, in astronomy, the 6th of the major planets in order of distance from the sun, and the outermost known to the ancients. Its mean diameter is about 70,000 miles, its mean distance from the sun somewhat more than 872,000,000 miles, and its year or periodical revolution around the



SATURN, THE PLANET.

sun nearly twenty-nine and one-half years. Its mass is about 90 times that of the earth. Saturn is attended by ten satellites, and surrounded by a system of flat rings, which are now supposed to be an immense multitude of small satellites mixed probably with vaporous matter.

**Saturnalia**, the feast in honor of Saturn, celebrated by the Romans in December, and regarded as a time of unrestrained license and merriment for all classes, even for the slaves. Hence, any time of noisy license and revelry; unrestrained, licentious revelry.

**Satyr**, in mythology, one of a number of rural deities of Greece, identical with the Fauni of the Latins. They are regarded as the attendants of Bacchus, and are represented as roaming through the woods, dwelling in caves, and endeavoring to gain the love of the Nymphs. They are usually represented with the feet and legs of goats, short horns on the head, and the body covered with thick hair.

**Sauer Kraut**, a well-known and favorite German dish, consisting of cabbage cut fine, pressed into a cask, with alternate layers of salt, and suffered to ferment until it becomes sour.

**Saul**, King of Israel from about 1095 to 1056 B. C.; the son of Kish, a Benjamite. Selected for this office by Samuel, he obtained, by his personal courage and military capacity, several successes over the Philistines, Edomites, Moabites, and Ammonites, by means of which he consolidated the tribes and confirmed his authority. After a long reign the wild nature of the king at length showed itself in a kind of religious frenzy, which is briefly described in the Bible as an "evil spirit of God," and led him to the massacre of the priests of Nob and various similar excesses. Meanwhile the prophet Samuel, estranged by the king's misdeeds, had anointed David as his successor, and this took effect when Saul was slain.

**Sault Ste. Marie**, city, port of entry, and capital of Chippewa county, Mich.; on St. Mary's river, the St. Mary's Falls ship-canal, and several railroads; near the E. end of Lake Superior; opposite Canadian city of same name, both cities being connected by canals and a railroad bridge; his unlimited water-power, large export trade in lumber, grain, fish, and farm produce, and manufacturing of lumber, leather, woolen goods, flour, shingles, sash, doors, and blinds; and remarkable canal-locks. Pop. (1930) 13,755.

**Sault Ste. Marie**, a town in Algoma county, Ontario, Canada; on St. Mary's river and the Canadian Pacific and other railways; opposite American city of same name; is the terminus of a Canadian ship-canal; has iron and copper mines nearby; manufactures steel rails, nickel ware, chemicals, and paper and pulp; and is a summer resort. Pop. (1930 Est.) 23,000.

**Saunders, Frederick**, an American librarian; born in London, England, Aug. 14, 1807. He came to the United States in 1837 and was librarian of the Astor Library, New York, 1859-96. He died in 1902.

**Saunders, Richard**, the name under which Benjamin Franklin published his almanac, 1732-1757.



**Sauria**, or **Saurians**, an order of reptiles, including all those which, like the crocodile and lizard, are covered with scales and have four legs. The most gigantic and remarkable specimens of saurian reptiles are now extinct, but their fossil remains, immense in size and wonderful as they appear, afford incontestable evidence of their similarity in structure to the harmless little lizard of the present day. The diversity in the habits of the existing saurians is very considerable—some being more or less aquatic, others strictly terrestrial, while others are essentially arboreal. The greater part feed on animal substances; some of them preferring fish, and others attacking small animals, while some are entirely insectivorous, and a few are herbivorous. They are all furnished with teeth, which are of a simple conical form, and adapted rather for securing and tearing their prey than for masticating it; their toes are generally furnished with claws, and they all have a tail more or less strong, and generally very thick at the base. A few species, exceptions to the general character, have only two legs.

**Sausage**, an article of food, consisting of chopped or minced meat, as pork, beef, or veal, seasoned with sage, pepper, salt, etc., and stuffed into properly cleaned entrails of the ox, sheep, or pig, twisted at short intervals into sections. When sausages are made on an extensive scale the meat is minced and stuffed into the intestines by machinery.

**Sausage Poison**, the poisonous agent or principle existing in sausages made or kept under certain unknown conditions. It has been variously regarded as empyreumatic oil, as an acid formed in consequence of a modified process of putrefaction, and as the effect of a fungus, *Sarcina botulina*.

**Saussure, Henri de**, a Swiss naturalist; born in Geneva, Switzerland, in 1829. He was a member of the scientific expedition to Mexico, and wrote several memoirs on the insects of that country. He wrote also: "Memoir to Serve for the Natural History of Mexico, the Antilles, and the United States." "The Genevan Explorers of the Alps."

**Saussure, Horace Benedict de**, a Swiss physicist; born in Conches, Switzerland, Feb. 17, 1740; was appointed Professor of Physics and Philosophy in the University of Geneva in 1762. In 1768 he began a tour of the mountain regions of Europe, being the first traveler to ascend to the summit of Mont Blanc. His observations helped to establish the basal facts of geology; and for his investigations he perfected the thermometer, the hygrometer, the eudiometer, electrometer and anemometer and invented the cyanometer and diaphanometer. He died in Geneva, Jan. 23, 1799.

**Savage, James**, an American historian; born in Boston, Mass., July 13, 1784; was graduated at Harvard University in 1803. He served as president of the Massachusetts Historical Society for several years. He was the author of "Genealogical Dictionary of the first settlers of New England," and other historical works. He died in Boston, Mass., March 8, 1873.

**Savage, John**, an American journalist; born in Dublin, Ireland, Dec. 13, 1828. He settled in New York in 1848, and subsequently in Washington became proprietor of "The States," the organ of Stephen A. Douglas. He died in Spragueville, Pa., Oct. 9, 1888.

**Savage, Minot Judson**, an American clergyman; born in Norridgewock, Me., June 10, 1841. He was graduated at the Theological Seminary at Bangor, 1864. He accepted a call to the Third Unitarian Church in Chicago in 1873, and after a year there was installed pastor of the Church of the Unity, Boston, where he remained for 22 years. In 1896-1906 he was minister in the Church of the Messiah, New York, retiring in the latter year. In his very active career he published over 30 books on religious and moral questions. D., 1918.

**Savage, Richard Henry**, author; born in Utica, N. Y., June 12, 1846; graduate of West Point, and lieutenant in U. S. army, and later with Egyptian army. He died Oct. 11, 1903.

**Savage Island**, a small coral island in the Pacific Ocean, between the Samoan and Tongan islands. It is about

30 miles in circuit and has a population of 5,000 nominal Christians. It was annexed by Great Britain in 1888.

**Savannah**, city, port of entry, and capital of Chatham county, Ga.; on the Savannah river and the Atlantic Coast line and other railroads; 18 miles from the Atlantic Ocean, 90 miles S. W. of Charleston; is the second city in commercial importance, and one of the most beautiful cities, in the South; has an excellent harbor, large foreign commerce, and much trade on the river, which is navigable from the ocean to Augusta; ships great quantities of cotton, fertilizers, lumber, rice, wool, naval stores, and hides; manufactures foundry products, fertilizers, guano, and farm implements; and contains a Federal Building, Cotton Exchange, Telfair Academy of Arts, Medical College, Episcopal Orphans' Home, Chatham Academy, St. Joseph's Infirmary, and Convent of St. Vincent de Paul. The city was founded in 1733 by General Oglethorpe and was occupied by the British in the Revolutionary War and by the Federal army in the Civil War.

The city has an area of six and three quarter square miles. In 1925 it was estimated that there were 101 manufacturing plants, employing 3,053 wage earners, paying \$3,074,736 for wages, and \$7,948,699 for raw materials, and yielding products having a combined value of \$15,118,938. Pop. (1930) 85,024.

**Savary, Ann Jean Marie Rene, Duc de Rovigo**, a French military officer; born in Marçq, France, April 26, 1774. Created Duke of Rovigo, he was sent to Spain and negotiated the arrangement by which the Spanish king and his son were kidnapped. In 1810 he superseded Fouché as minister of police. After the fall of Napoleon he wished to accompany him to St. Helena; but he was confined by the British government at Malta for some months. He died June 2, 1833.

**Savonarola, Girolamo**, an Italian reformer; born of a noble family in Ferrara, Sept. 21, 1452. He was educated at home, and at a very early age became deeply versed in the philosophy of the schools; but his dispo-

sition was from the first tinged with religious asceticism, and in 1474 he formally withdrew from secular affairs and entered the Dominican Order at Bologna. Having completed his novitiate and the studies of the order, he seems to have made his first public appearance as a preacher in 1482, at Florence. His first trial, however, was a failure.

His second appearance in the pulpit of San Marco was a complete success. The great subject of his declamation was the sinfulness and apostasy of the time; and for his half-expositions, half-prophetical outpourings, his followers claimed for him the character of an inspired prophet.

Up to this time, however, Savonarola's relations with the Church were, if not of harmony, at least not of antagonism; and when, in the year 1493, a reform of the Dominican Order in Tuscany was proposed under his auspices, it was approved by the Pope, and Savonarola was named the first vicar-general. About this date, however, his preaching had assumed a directly political character, and the predictions and denunciations which formed the staple of many of his discourses pointed plainly to a political revolution in Florence and in Italy as the divinely ordained means for the regeneration of religion and morality. In one of his discourses he pointed plainly to the advent of the French under Charles VIII. Very soon, however, the French were compelled to leave Florence, and a republic was established, of which Savonarola became, though without political functions, the guiding and animating spirit, his party being completely in the ascendant.

It was during this brief tenure of influence that Savonarola displayed to the fullest extent both the extraordinary powers of his genius and the full extravagance of the theories to which his enthusiastic asceticism impelled him. The republic of Florence was to be the model of a Christian commonwealth, of which God Himself was the chief ruler, and His Gospel the sovereign law; and thus the most stringent enactments were made for the repression of vice, and of all the sinful follies by which it is fomented and maintained.

Meanwhile, the extremes of his rigorism, the violence of his denunciations, which did not spare even the Pope himself, drew on him the displeasure of Rome. He was cited, in the year 1495, to answer a charge of heresy at Rome; and, on his failing to appear, he was forbidden to preach; the brief by which the Florentine branch of his order had been made independent was revoked; he was offered a cardinal's hat on condition of his changing his style of preaching—an offer he indignantly refused; and he was again forbidden to preach. Once again Savonarola disregarded this order.

At the critical point of the struggle of parties came, in 1497, a sentence of excommunication from Rome against Savonarola. Savonarola openly declared the censure invalid, because unjust, and refused to hold himself bound by it. When the new elections took place, the party opposed to Savonarola, the Arrabbiati, came into power. He was ordered to desist from preaching; and the struggle was brought to a crisis by the counterdenunciations of a preacher of the Franciscan order, long an antagonist of Savonarola, Francesco da Puglia.

In the midst of this reaction he was cited before the council, and brought to trial for falsely claiming to have seen visions and uttered real prophecies, for other religious errors, and for political insubordination. He denied the charges; but, put to the torture, he made avowals which he afterward withdrew. The conclusion was a foregone one; he was declared guilty of heresy and of seditious teaching, and of being an enemy to the peace of the Church. The acts of the trial were sent to Rome, where the sentence was confirmed; he, with two disciples of his order, was given up to the secular power; so on May 23, 1498, this extraordinary man and his two companions, brothers Domenico and Silvestro, were strangled, and their bodies burned by the executioner. They died professing their adherence to the Catholic Church, confessed and received absolution, and on the morning of the execution Savonarola administered the last communion to his two companions and himself. There seems no doubt that Savonarola firmly believed in the

dogmas of the Roman Catholic Church; and it is only as a moral and religious reformer, and not a theological teacher, that he can in any way be regarded as a forerunner of the Reformation of the 16th century.

**Savoy**, a former duchy of the kingdom of Sardinia, now annexed to France, and forming the Departments of Savoie and Haute-Savoie, having N. and N. E. Switzerland, S. E. and S. Piedmont, and W. the Departments of Isère and Ain; area, 3,890 square miles. It is the most elevated country of Europe, consisting principally of mountains, the most elevated of which is Mount Blanc. The valleys and low grounds are fertile and well cultivated. Rivers, Rhône, Arve, Drance, and Isère; lakes, Annecy and Bourget. Products, wheat, oats, barley, rye, and hemp. Minerals, iron, copper, silver, lead, coal, and salt. Manufactures, cotton and woolen fabrics, hosiery, felt hats, glass, earthenware, etc. Capital of Savoie, Chambéry; of Haute-Savoie, Annecy. Savoy was anciently a part of Sapaudia, whence the name Saboia, or Savoy, is derived. It was erected into a duchy under Amadeus VIII., in 1416, and was ceded to France in 1860. Pop. (Est.) 600,000.

**Savoy, The**, a district of London, England, between the Strand and the Thames embankment; the site of the Savoy Palace, built by Peter of Savoy, uncle of Eleanor, Queen of Henry III., in 1245. It was burned by Wat Tyler in 1381, but restored as the Hospital of St. John by Henry VII. in 1505. The hospital was dissolved in 1702, and the buildings removed in 1817-19. The Chapel of the Savoy, which at one time enjoyed the privilege of sanctuary, was greatly injured by fire in 1864, and was restored at the expense of Queen Victoria.

**Sawyer, Charles Henry**, an American manufacturer; born in Wattertown, N. Y., March 30, 1840. He was a Republican governor of New Hampshire in 1887-1889. In the latter year he was the New Hampshire commissioner to the Paris Exposition. He died in 1908.

**Sawyer, Leicester Ambrose**, an American author; born in Pinckney, N. Y., July 28, 1807. He was pastor

of various churches (1842-1859), and published a notable new translation of the New Testament, without the usual division into verses. Died 1898.

**Sawyer, Sylvanus**, an American inventor; born in Templeton, Mass., April 15, 1822. In 1843 he patented a machine for preparing chair-cane from rattan; brought about many improvements in rifled cannon projectiles in 1853-1855; took out patents on dividers and calipers in 1867; invented a steam generator in 1868; obtained a patent for a sole-sewing machine in 1876, and for a watchmaker's lathe in 1882. He died in Templeton, Mass., Oct. 28, 1895.

**Saxe, John Godfrey**, an American humorous poet; born in Highgate, Vt., June 2, 1816. He was also well known as a lecturer. His most popular verses include "Rhyme of the Rail" and "The Proud Miss McBride"; and many published works. He died in Albany, N. Y., March 31, 1887.

**Saxe-Altenburg**, a State of Thuringia, German republic; divided into two nearly equal portions by a part of Reuss, and bounded on the S. W. by the new state of Saxe-Weimar-Eisenach, on the N. by Prussia, and on the E. by Saxony; area, 511 square miles. The Eastern or Altenburg division is very fertile, while the Western or Saal-Eisenburg portion is hilly and wooded. The chief manufactures are porcelain, bricks and tiles, machines, woollens, paper, tobacco, gloves, tanning and brewing. Lignite is mined. The capital is Altenburg. Pop. (Est.) 45,000. Pop. of state, about 250,000.

**Saxe-Coburg-Gotha**, formerly a sovereign duchy, now two separate states of which Coburg is a part of the republic of Bavaria, and Gotha now a part of the republic of Thuringia. Areas: Coburg, 218 square miles; and Gotha 542 square miles. The S. of Gotha and the N. of Coburg are both mountainous. Both divisions are fertile; the hills are covered with wood, and in Gotha coal and other minerals are found. The chief occupations of the inhabitants, particularly in Coburg, are cattle rearing and agriculture. In Gotha there

are manufactures of linen, leather, metal-ware, etc. The government is a constitutional monarchy, and each province has its own elective assembly. For affairs common to both divisions the assemblies meet conjointly at Coburg and at Gotha alternately, the two chief towns of the duchy. The ducal house and the greater part of the population profess the Lutheran faith. Pop. (Est.) 250,000.

**Saxe-Meiningen**, a State of Thuringia, German republic, consisting of a main body and several minor isolated portions; area, 953 square miles. The greater part of the surface is hilly, and the principal crops are oats, buckwheat, potatoes, turnips, hemp, and the pastures rear considerable numbers of cattle, sheep, and horses. The minerals include iron and copper, worked to a small extent, and the manufactures are chiefly ironware, porcelain, glass, etc. The government is a hereditary and constitutional monarchy, there is a representative chamber of 24 members, and the great majority of the inhabitants are Lutherans. The capital is Meiningen. Pop. (Est.) 280,000.

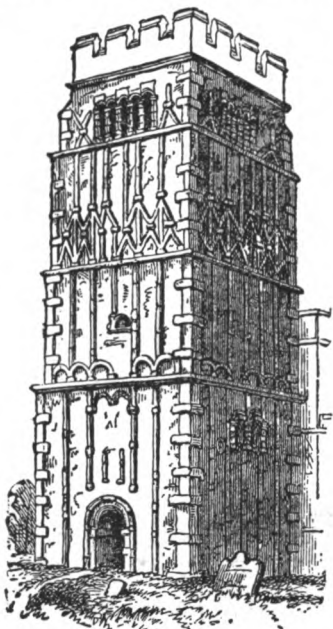
**Saxe-Weimar**, a State of the republic of Thuringia, consisting of three larger portions, Weimar, Neustadt, and Eisenach, and 12 smaller portions; area, of the whole, 1,397 square miles. The forests are very extensive, and form the principal wealth of the grand-duchy. The minerals are unimportant. In Eisenach woolen, cotton, and linen tissues, ribbons, and carpets, etc., are made. The chief town is Weimar, and there is a university at Jena. The government is constitutional, the legislative power being vested in a house of Parliament, consisting of one chamber of 31 members. Pop. (Est.) 450,000.

**Saxhorn**, a brass instrument constructed in such a manner that the large portion, after passing under the arm of the performer, repasses over his shoulder, presenting the bell to the front.

**Saxicava**, a genus of marine mollusks with numerous species ranging from low water to 140 fathoms. It is found in the Arctic seas, where it attains its largest size, in the Mediterranean, at the Canaries, and in Cape Colony. It bores into stone, and

has done great damage to submarine masonry.

**Saxon Architecture**, the style of architecture in use in England from the time of its conversion till the Conquest. It is easily recognized by its massive columns and semicircular



SAXON ARCHITECTURE.—TOWER IN NORTHAMPTONSHIRE, ENGLAND.

arches, which usually spring from capitals without the intervention of the entablature.

**Saxons**, a Germanic people, whose name is usually derived from an old Teutonic word *sahs*, meaning "knife," though some authorities believe it to be another form of *Sassen* = "the settled people." In the 3d century they invaded the Roman territory; but their piratical descents on the coasts of Britain and Gaul are far more famous. About 450 they in conjunction with the Angles established themselves permanently in the island and

founded the Anglo-Saxon kingdoms.

**Saxony** a Free State of the new republic of Germany; bounded on the north-west, north, and east by Prussia, south-east and south by Bohemia, south-west by Bavaria, and west by Reuss, Saxe-Weimar, and Saxe-Altenburg; greatest length, 135 miles; greatest breadth, 75 miles; area, 5,787 square miles (no change made in 1918); pop. (1925) 4,992,320. For administrative purposes it is divided into the four districts of Dresden, Leipzig, Zwickau, and Bautzen or Budissin.

**Saxophone**, the name of a family of musical instruments invented by M. Sax. They consist of a conical brass tube, sounded by a mouthpiece furnished with a single reed similar to that of the clarinet, and are made in as many different keys as the saxhorn. They are greatly valued in military music, but are not much used in the orchestra.

**Say, Jean Baptiste**, a French economist; born in Lyons, France, Jan. 5, 1767. He popularized the theories of Adam Smith in France. His best-known work is "Treatise on Political Economy." His "theory of markets" attracted great attention. He died in Paris, Nov. 15, 1832.

**Say, Jean Baptiste Leon**, a French statesman and economist; grandson of the preceding; born in Paris, June 6, 1826. He was elected to the National Assembly in 1871, and in the following year became Minister of Finance in the government of M. Thiers. He occupied this position in successive ministries; was appointed ambassador to London in 1880, and soon afterward was elected president of the Senate. Among his works are: "Finances of France"; "State Socialism"; "Democratic Solution of the Tariff Question"; and "Turgot." He edited "The Dictionary of Finance" and "The New Dictionary of Political Economy." He died April 21, 1896.

**Say, Thomas**, an American naturalist; born in Philadelphia, Pa., July 27, 1787; was one of the founders of the Academy of Natural Sciences in Philadelphia in 1812; participated in a scientific exploration of the coasts and adjacent islands of Georgia and



Florida in 1818; was chief geologist of an expedition to the Rocky Mountains in 1819-1820. He is supposed to have discovered more new species of insects than any naturalist prior to his time. He died in New Harmony, Ind., Oct. 10, 1834.

**Sayce, Archibald Henry**, an English Orientalist; born near Bristol, England, Sept. 25, 1846. His works extend over various fields and are of great importance for comparative philology and history.

**Sayles, John**, an American author; born in Vernon, N. Y., March 9, 1825. He served in the Civil War as Brigadier-General of Texan militia; and in 1880 became Professor of Law in Baylor University. He was the author of many works on Texan law. He died in Abilene, Tex., May 22, 1897.

**Sayre, David Austen**, an American philanthropist; born in Battle Hill, N. J., March 12, 1793; removed to Lexington, Ky., where he became a successful merchant and banker. He was noted for his benevolence; gave \$100,000 to found Sayre Institute; and about \$400,000 to other benevolent objects. He died Sept. 11, 1870.

**Sayre, Lewis Albert**, an American surgeon; born in Battle Hill, N. J., Feb. 29, 1820. In 1842 he became prosecutor to the Professor of Surgery in the College of Physicians and Surgeons, which office he held till made prosecutor emeritus in 1852. He was the first American to remove the head of the femur in hip-joint disease. He performed this operation in 1854, and in seven years had created by this and other original methods a practically new department in his profession. He died in New York city, Sept. 21, 1900.

**Sbaretti, Donatus**, a Roman Catholic prelate; born in Montefranco, Umbria, Italy, Nov. 12, 1856; was educated in the College of St. Apollinaris in Rome; ordained in the priesthood, April 12, 1879; Professor of Speculative and Moral Philosophy in the College of the Propaganda in Rome for eight years; then sub-secretary of the Propaganda for the Church in the United States; private chamberlain to Pope Leo XIII.; first auditor of the Apostolic Legation in Washington in 1893-1900; appointed Bishop of Havana in 1900, Apostolic Delegate to

the Philippines in 1901, and to Canada in 1902.

**Scævola, Caius Mucius**, an illustrious Roman, who distinguished himself when Porsenna besieged Rome, 507 B. C. Mucius entered the camp of Porsenna to assassinate him, and by mistake stabbed one of his attendants. Being seized and brought before Porsenna, he said that he was one of 300 who had engaged, by oath, to slay him; and added, "This hand, which has missed its purpose, ought to suffer." On saying this, he thrust it into the coals which were burning on the altar, and suffered it to be consumed. Porsenna, struck with his intrepidity, made peace with the Romans. The name of Scævola, or "Left-handed," was given as a mark of distinction to Mucius and his family.

**Scagliola**, a term applied to ornamental plaster work, made of finely-ground calcined gypsum worked into a paste with glue. It produces the most perfect imitation of marble, from which it can scarcely be distinguished.

**Scald Head**, the popular name of a fungous parasitic disease of the scalp (and occasionally of the face and other parts). The primary seat of the parasite is in the lowest portion of the hair follicles, outside the layer of epithelium which covers the root of the hair.

**Scale**, a measure, consisting of a slip of wood, ivory, or metal, divided into equal parts, usually main divisions and subdivisions; as, inches or octonary fractions for carpenters' work, decimal divisions and subdivisions for chain work, duodecimal for plotting carpenters' work, which is in feet and inches. The meter and its decimal subdivisions are also sometimes employed. Also any instrument, figure or scheme graduated for the purpose of measuring extent or proportions.

In music, the sounds in consecutive order used by various nations in different forms as the material of music. In a proper succession such sounds form melody, in proper combinations they constitute harmony. The modern scale, universally used among the more civilized nations, consists of 12 divisions, called semitones, included in one octave.

**Scale Moss**, a popular name given to certain plants resembling moss. They grow on the trunks of trees, in damp earth, and in similar places, and are so called from the small scale-like leaves.

**Scalene**, in mathematics, a term applied to a triangle whose sides are all unequal; also to a cone such that a section made by a plane through the axis perpendicular to the plane of the base is a scalene triangle. In this latter case the term is equivalent to oblique.

**Scales**, the imbricated plates on the exterior of certain animals, as the pangolins or scaly ant eaters, serpents and other reptiles, and especially fishes.

**Scales, Alfred Moore**, an American lawyer; born in Reedsville, N. C., Nov. 26, 1827. He was admitted to the bar in 1851. When the Civil War broke out he entered the Confederate army as a private, and was rapidly promoted to the rank of Brigadier-General. After the war he resumed law practice; member of Congress in 1875-1884; governor of North Carolina in 1884-1888. Died Feb. 9, 1892.

**Scaliger, Julius Cæsar** (originally Della Scala), a celebrated Italian scholar; born near Lago di Garda, Italy, April 23, 1484. He went to France in 1520, and there practised medicine. According to some scholars, "no one of the ancients could be placed above him, and the age in which he lived could not show his equal" in learning and talent. He published an "Oration against Erasmus" (1531), in reply to that scholar's "Ciceronianus"; "Poems," in Latin, filling several volumes; "Comic Meters"; and a variety of dissertations and essays on classical subjects. He died in Agen, France, Oct. 21, 1558.

**Scallop**, a well-known bivalve, one of those with a single muscle closing the shell. The beautiful coloring of the shells is remarkable even among bivalves. On the margins of the mantle there are hundreds of small sparkling eyes of different degrees of visual efficiency. The scallops are widely distributed in all seas, at depths of 3 to 40 fathoms. About 180 living species are known, and over 400 are recorded as fossils from Carboniferous strata.

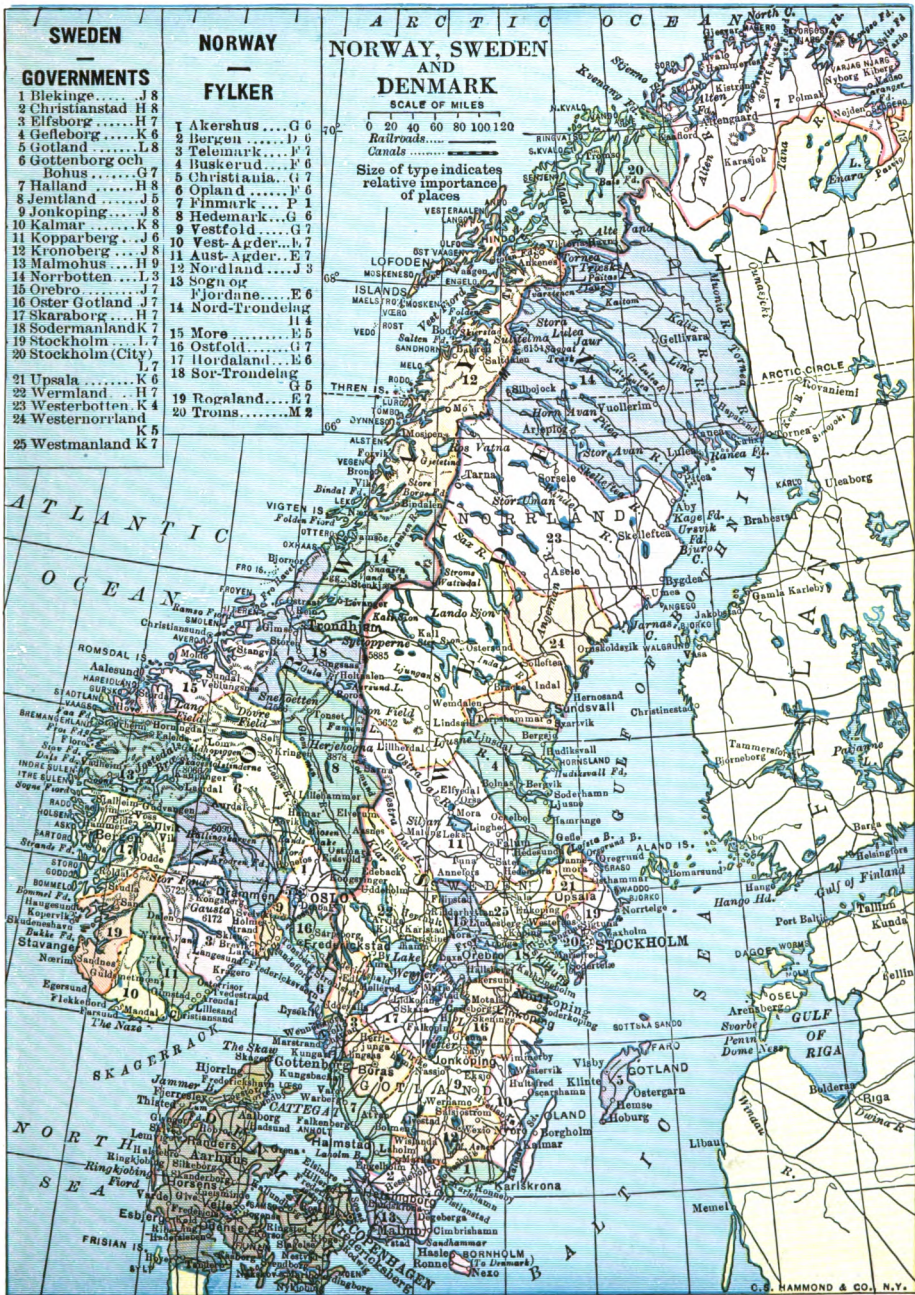
**Scalp**, the term employed to designate the outer covering of the skull or brain case. Except in the fact that hair in both sexes grows more luxuriantly on the scalp than elsewhere, the skin of the scalp differs but slightly from ordinary skin.

**Scalping**, the act, peculiar to North American Indian warfare, of partly cutting, partly tearing off a piece of the skin of the head, with the hair attached; whether the victim is alive or dead at the time does not affect the operation. The Indians, with whom scalps are the trophies of victory, have always left a long lock or tuft on the scalp as a challenge. Bounties have, in American history, more than once been offered for scalps: in 1724 £100 (about \$500) was offered by Massachusetts for Indian scalps; in 1754, during the French and Indian war, a bounty was offered by the French for British scalps, and by the colonies for Indian scalps; in 1755 Massachusetts offered £40 (about \$200) for every scalp of a male Indian over 12 years old, and £20 (about \$100) for scalps of women and children.

**Scanderbeg** (properly Iskanderbeg, or Prince Alexander), an Albanian chief whose real name was George Castriota; born in Croia, Albania, in 1403. He was the son of a Christian prince, but was brought up by the Turks and fought for some time for Amurath II. Becoming possessed of the chief city of his country, which the Turks had taken, he turned against them, abjured Mohammedanism, and raised the whole of Epirus in revolt. For 25 years he withstood all the efforts of the Turks to overcome him, defeating them in 22 battles, even when led by the Sultan. Shortly before he died, he was compelled to yield to superior forces. He died in Alessio, Albania, Jan. 17, 1468.

**Scandinavia**, the ancient name of the region now comprehending the three kingdoms, Denmark, Sweden, and Norway, or Sweden and Norway alone, and still not uncommonly used.

**Scansores**, an order of birds, popularly known as climbing birds, having the feet provided with four toes, of which two are turned backward and two forward. This conformation of the



**SWEDEN**  
**GOVERNMENTS**

- 1 Blekinge.....J 8
- 2 Christianstad H 8
- 3 Elfsborg.....H 7
- 4 Gefleborg.....K 6
- 5 Gotland.....L 8
- 6 Gottland och Bohus.....G 7
- 7 Halland.....H 8
- 8 Jemtland.....J 5
- 9 Jonkopings.....J 8
- 10 Kalmar.....K 8
- 11 Kopparberg.....K 6
- 12 Kronoberg.....K 7
- 13 Malmohus.....H 9
- 14 Norrbotten.....L 3
- 15 Orebro.....J 7
- 16 Oster Gotland.....J 6
- 17 Skaraborg.....H 7
- 18 Sodermanland K 7
- 19 Stockholm.....L 7
- 20 Stockholm (City).....K 5
- 21 Upsala.....K 6
- 22 Vermland.....H 7
- 23 Westerboten K 4
- 24 Westernorrland K 5
- 25 Westmanland K 7

**NORWAY**  
**FYLKER**

- 1 Akershus.....G 6
- 2 Bergen.....D 6
- 3 Telemark.....F 7
- 4 Buskerud.....F 6
- 5 Christiania.....G 7
- 6 Oppland.....F 6
- 7 Finnmark.....P 1
- 8 Hedemark.....G 6
- 9 Vestfold.....G 7
- 10 Vest-Agder.....H 7
- 11 Aust-Agder.....E 7
- 12 Nordland.....J 3
- 13 Sogn og Fjordane.....E 6
- 14 Nord-Trondelag.....I 4
- 15 More.....E 5
- 16 Ostfold.....G 7
- 17 Hordaland.....E 6
- 18 Sor-Trondelag.....G 5
- 19 Rogaland.....E 7
- 20 Troms.....M 2

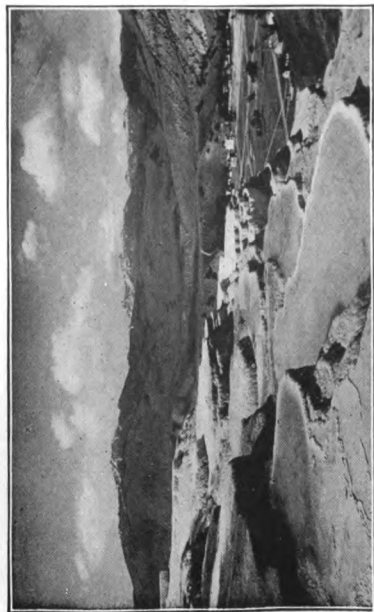
**NORWAY, SWEDEN AND DENMARK**

SCALE OF MILES  
0 20 40 60 80 100 120

Railroads.....  
Canals.....

Size of type indicates relative importance of places

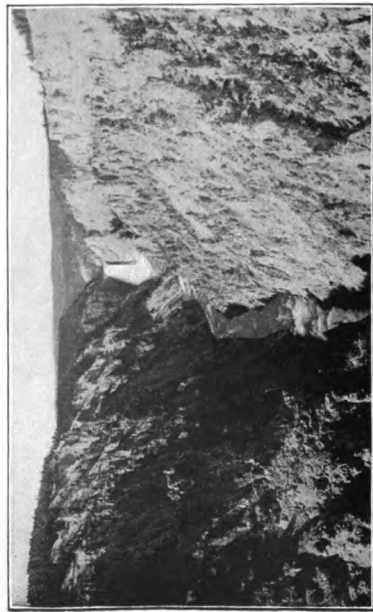




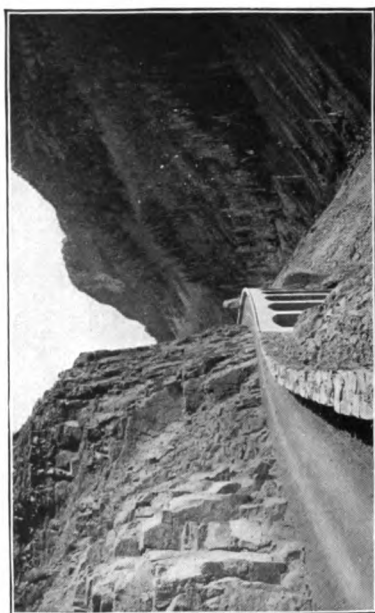
PULPIT TERRACE



GIANT GEYSER CHATEAUX



GREAT FALLS AND GRAND CANYON



GOLDEN GATE CANYON AND VIADUCT

## YELLOWSTONE PARK

Courtesy N. P. R. Co.

foot enables the scansores to climb with unusual facility. Their food consists of insects and fruit; their nests are usually made in the hollows of old trees. The most important families are the cuckoos, the woodpeckers and wry necks, the parrots, the toucans, and the trogons. Not all of this order are actually climbers, and there are climbing birds which do not belong to this order.

**Scape**, in architecture, the shaft of a column; also, the apophyge of a shaft; also, a botanical term for a flower stalk springing straight from the root, as in the primrose, snow-drop, etc.

**Scape Goat**, a term applied to one who is made to bear the blame due to another. The idea is drawn from the Jewish ritual, in which a scape goat was a goat designed to 'scape, i. e., escape, as opposed to one killed and offered in sacrifice.

**Scapula**, in anatomy, one of the two bones, the other being the clavicle, which together form the pectoral arch or shoulder girdle. The scapula constitutes its posterior part.

**Scapular**, or **Scapulary**, a dress originally worn over their other dress by the monks when at manual labor, but now forming part of the habit of the older religious orders; also a miniature copy of a monk's scapular made of two pieces of cloth, connected by strings, worn by Roman Catholics from motives of devotion. In surgery, a bandage for the shoulder blade.

**Scarborough, William Saunders**, an American educator; born in Macon, Ga., in 1852 of negro parentage; was graduated at Oberlin College in 1875; was Professor of Classical Greek at Wilberforce University for 19 years and Professor of Hellenistic Greek at the Theological Department of the same institution in 1891-1895. He then returned to the university proper as a Professor of Ancient Languages. He was identified with many learned societies. His publications include "Theory and Functions of the Thematic Vowel in the Greek Verb"; "Our Political Status"; many articles on the Negro question, Negro folklore; etc.

**Scarfing**, a particular method of uniting two pieces of timber together

by the extremities, the end of one being cut or notched so as to fit into the other, making the part where the junction takes place of the same thickness as the rest of the pieces of timber.

**Scarification**, in surgery, the act of separating the gum from the teeth, in order the better to get at them with an instrument; the act of making a number of incisions in the skin with a lancet or scarificator, for the purpose of letting blood or of drawing off a fluid; the act of making incisions generally.

**Scarificator**, in surgery, an instrument used in dental surgery in separating the gum from the teeth; also an instrument used in cupping. Also a lancet for scarifying the skin or an engorged membrane.

**Scarlatti, Alessandro**, an Italian composer, born in 1650, who was the founder of the Neapolitan school of music, in which most of the composers of the 18th century were trained. Scarlatti originated the overture. He is said to have written 200 masses, 100 operas, and 3,000 cantatas. His writings, though they produced a revolution in the style of operatic music, are almost all completely forgotten. He died in Naples, Oct. 24, 1725. His son Domenico (1683-1757) was considered the greatest harpsichord player (pianist) of his time.

**Scarlet**, a beautiful bright red color, brighter than crimson. The finest scarlet dye is obtained from cochineal.

**Scarlet Bean**, or **Scarlet Runner**, a twining plant, a native of Mexico, cultivated as a green vegetable or as an ornamental plant.

**Scarlet Fever**, or **Scarlatina**, a contagious febrile disease almost always attended during a part of its course by a rash and by sore throat.

**Scepticism**, that negative system of philosophy which, by doubting of everything beyond the region of phenomena, doubts the possibility of all speculation; or, according to Sextus Empiricus, "the power of opposing, in all their contradiction, the sensuous representations and the conceptions of the mind, and thus to induce perfect suspension of judgment." The sceptic, in general, accepts of the phenomena of nature as he finds them, and, con-



vinced of the impossibility of diving beneath the appearances to the real causes of things, contents himself with a spirit of doubt and indifference. The most celebrated thinkers of this class in ancient times were Pyrrho, Timon, Ctesidemus, and Sextus Empiricus; in modern times, David Hume. The scepticism of Hume is, beyond all doubt, the most thorough and wide-reaching that philosophy has yet witnessed. He starts with the popular theory of experience, and proceeds with surprising coolness to hew down every intelligent principle for which his theory was incapable of accounting. In open argument, in candid statement, and in solid attack, the Scotch sceptic is greatly in advance of his Greek predecessors. His scepticism called forth a host of assailants, and has more or less influenced philosophical thought and opinion since his time.

**Scepter**, a staff or baton borne by a sovereign or ruler as a symbol of office or authority; the ensign of royalty borne in the hand. The English scepter is cruciform.

**Schaeberle, John Martin**, an American astronomer; born in Germany in 1853; was graduated at the University of Michigan in 1876. He was acting Professor of Astronomy at that institution in 1878-1888 and astronomer of Lick Observatory, Mt. Hamilton, in 1888-1898. He had charge of the eclipse expedition of Lick Observatory to Cayenne and Chile in 1889 and 1893, and to Japan in 1896. He discovered three comets, one with a telescope made by himself, and carried on considerable other original investigation. He was a frequent contributor to astronomical periodicals.

**Schaeffer, Nathan C.**, an American educator; born in Berks co., Pa., Feb. 3, 1849; was graduated at Franklin and Marshall College. In 1893 he was made State Superintendent of Public Instruction of Pennsylvania. He became editor of the "Pennsylvania School Journal" in 1893.

**Schaff, Philip**, an American clergyman; born in Coire, Switzerland, Jan. 1, 1819. He was president of the American Committee on Bible Revision in 1871, and professor of sacred literature in Union Theological Seminary. He died in New York city, Oct. 20, 1893.

**Schamyl**, a Caucasian chief; born in Northern Daghestan in 1797. In 1824 he joined in the struggle which then broke out against the Russians. He was ultimately elected chief and continued to resist the Russian power until 1859, when he was captured and taken to St. Petersburg. He was assigned a residence at Kaluga in the middle of Russia, with a pension of \$5,000, and he died in Medina, Arabia, in March, 1871, having taken up his residence in Mecca the year previously. In faith he was a Sufi.

**Scharnhorst, Gerhard Johann David von**, a Prussian military officer; born in Bordenau, Hanover, Nov. 12, 1756. In 1807 he was put at the head of the commission for reorganizing the armies of Prussia. He reformed the army, introduced the short service system, created a better spirit among both officers and men, and so converted what had been a mercenary force into a national army. Scharnhorst was wounded at Grossgroschen while acting as chief of the staff of the Silesian army, and died in Prague, Bohemia, June 28, 1813.

**Scheele, Karl Wilhelm**, a Swedish chemist; born in Stralsund, Sweden, Dec. 19, 1742. To him we owe the discovery of fluorine, chlorine, and of molybdenic, tungstic, arsenic, lactic, gallic, tartaric, oxalic, citric, malic, purpuric and lactic acids, glycerine, and oxygen. He ascertained the nature and the constituents of ammonia and prussic acid, the characters of barytes and magnesia, and the elements of the atmosphere. Few men of his century, with the exception of Priestley, can be compared with him as a discoverer. He died May 21, 1786.

**Scheer, Admiral Reinhard**, born at Hanau on Sept. 30, 1863, died of heart disease Nov. 26, 1928, at Marktredwitz, Franconia, Southern Germany. Was given command of German second squadron during World War, and while serving in this capacity gained the admiration of the whole world for his bravery and skill against the British fleet during the famous battle of Jutland, fought in 1916.

**Schelling, Friedrich Wilhelm Joseph von**, a German philosopher; born in Leonberg, Wurtemberg, Jan. 27, 1775. He was the last survivor of

that famous band of German philosophers of which Kant, Jacobi, Herbart, Fichte, and Hegel are the other chiefs. By the nature of his speculations, developed in a number of fragmentary publications, chiefly in the earlier part of his life, Schelling's place in the great series of German philosophers is determined to be between Fichte and Hegel. His metaphysical theory is generally known by the name of the "System of Identity." It rests on the principle that the two elements of thought, the objects respectively of understanding and reason, are only relatively opposed to one another as different forms of the absolute or infinite, hence sometimes called the two poles of the absolute. He died in Ragatz, Switzerland, Aug. 20, 1854.

**Schenck, Robert Cumming**, an American diplomatist; born in Franklin, O., Oct. 4, 1809. At the outbreak of the Civil War he was appointed a Brigadier-General of volunteers. After performing effective services in the Gettysburg campaign he resigned his commission in 1863 to take his place in the National House of Representatives. He was reelected to Congress in 1866 and 1868, and minister to Great Britain in 1870-1876. Died, 1890.

**Schenectady**, city and capital of Schenectady county, N. Y.; on the Mohawk river, Erie canal, and the New York Central & Hudson River and the Delaware & Hudson railroads; 17 miles N. W. of Albany; is one of the oldest cities in the State—settled in 1661; is the seat of Union University (formerly, College), founded in 1795; has very large locomotive and electrical works, knitting and lace mills, and farm machinery plant; contains a State Armory, Ellis Hospital, Children's Home, Home for the Friendless, and several notable public buildings. It was burned and nearly all of its inhabitants were massacred by the French and Indians in 1690; a second massacre occurred in 1748. Pop. (1920) 88,723; (1930) 95,692.

**Schiff, Jacob Henry**, an American banker and philanthropist; born in Frankfurt-on-the-Main, Germany, in 1847; settled in New York City in 1865; became actively interested in banking affairs; member of the Chamber of Commerce and the banking firm

of Kuhn, Loeb & Co.; founded the Jewish Theological Seminary, the Semitic Museum at Harvard University, and the Nurses' Settlement; was a trustee of the Baron de Hirsch Fund; and a liberal supporter of many large educational institutions, irrespective of creed.

**Schiller, Johann Christoph Friedrich von**, a German poet; born in Marbach, Wurtemberg, Nov. 10, 1759. After having studied medicine and become surgeon of a regiment, he, in his 22d year, wrote the tragedy of "The Robbers," which at once raised him to the foremost rank among the dramatists of his country. It was performed at Mannheim in 1782. But some passages of a revolutionary tendency having incurred the displeasure of the Duke of Wurtemberg, Schiller left Stuttgart by stealth and made his way to Mannheim, where, after various wanderings and many hardships, he got his tragedy of "Fiesco" brought out on the stage. In 1789 he was appointed to the chair of history in the University of Jena, and besides lecturing to crowded audiences he published his "History of the Thirty Years' War" and engaged in various literary enterprises which had great influence on the literature of Germany. About 1790 he exhibited a strong tendency to consumption, which, by precluding him from lecturing, greatly reduced his income; but he was relieved from the pressure of misfortune by the kindness of the Prince of Denmark, who settled on him a pension of \$1,000 for three years, and thus enabled him to pursue his studies free at once from narrow circumstances and public duties. He soon after settled at Weimar, in order to direct the theater with Goethe, and there published "Wallenstein," "Mary Stuart," "Joan of Arc," and "William Tell." He died May 9, 1805.

**Schilling, Johann**, a German sculptor; born in Mittweida, Saxony, June 23, 1828; studied art at Berlin and Dresden. In 1868 he became professor at the Dresden Royal Academy. His chief works include the "Four Seasons" at Dresden; Schiller statue at Vienna; Maximilian's statue at Trieste; War Memorial at Hamburg; the German National Monument on the Niederwald, opposite Bingen on

the Rhine, with a colossal figure of Germania; and the statue of the Emperor William I. at Wiesbaden (1894).

**Schism**, an ecclesiastical division in a Church or separation from a Church; as also the tendency to promote such division. The Great Schism or Greek Schism is the separation of the Greek Church from the Latin.

**Schist**, a term used for rocks consisting of mineral ingredients arranged so as to impart a more or less laminar structure, that may be broken into slabs or slaty fragments. Such are mica schists, chlorite schists, etc.

**Schlegel, August Wilhelm von**, a German author; born in Hanover, Prussia, Sept. 8, 1767. He was Professor of Literature in the University of Bonn. His most notable works in literary and art criticism are: "Lectures on Dramatic Art and Literature" (3 vols. 1809-1811), translated into nearly all the languages of Western Europe. He translated many of the plays of Shakespeare and made the English dramatist a German classic. He translated Dante, Calderon, Camoens, and other foreign masters of literature. He wrote sonnets, an elegy, "Rome" (1812), and other poems. He died in Bonn, Germany, May 12, 1845.

**Schlegel, Friedrich von**, a German philologist; born in Hanover, Prussia, March 10, 1772. He first devoted himself to the study of Greek antiquity, and in 1794 published his great essay "On the Schools of Grecian Poetry"; following it with many others of a like tenor. In his "Fragments," he essayed to establish the theory of a new romanticism. His work "Language and Wisdom of the Indians" (1808) was a valuable contribution to the science of language. He died in Dresden, Saxony, Jan. 12, 1829.

**Schley, Winfield Scott**, an American naval officer; born in Frederick co., Md., Oct. 9, 1839. He entered the United States Naval Academy in 1854, and began his seafaring experience by making the voyage to Japan on board the United States vessel which escorted the Japanese embassy home in 1860. He remained abroad till the Civil War, when he secured the first prize ship of the war, the "General Parkhill."

At the close of the Civil War he was ordered to the Pacific coast, where he performed various missions of a perilous character, being present at the bombardment of Valparaiso and Callao by the Spanish fleet, and during the same cruise he suppressed insurrections at both Middle Chincha Island and La Union, Honduras. Equal in importance to these services in time of war was his voluntary command of the expedition for the rescue of Greely from the desolate shore of Cape Sabine in 1884. The marvelously short period in which this dash into the kingdom of the frost king was accomplished and the starving victims snatched back to their homes and civilization form a bright testimonial to his skill and daring. At the beginning of the Spanish-American War he had attained the rank of commodore, and was chairman of the Lighthouse Board, to which office he was elected by unanimous vote of the board on April 15, 1897. In anticipation of the war with Spain, Commodore Schley was, on March 25, 1898, placed in command of the "Flying Squadron" at Hampton Roads, comprising the armored cruiser "Brooklyn," the battleships "Massachusetts" and "Texas," the dispatch boat "Scorpion," and a collier. On May 13, under sealed orders, he steamed out to sea, presumably for the purpose of intercepting and destroying the Spanish fleet under Admiral Cervera, which was reported to be on its way from the Cape Verde Islands to Cuban waters. Disregarding various misleading reports sent out from Madrid as to the movements of the Spanish fleet, Commodore Schley divined the probable course the Spanish admiral would take, and on May 28 arrived off the harbor of Santiago de Cuba, in which the Spanish fleet had taken refuge, and by blockading the entrance prevented its escape. His squadron was united with Rear-Admiral Sampson's fleet on June 30, and on July 3 the combined fleet, under Commodore Schley, destroyed the Spanish fleet while endeavoring to escape, an unfortunate "loop" movement of Schley's ship, however, creating much adverse comment. In August, 1898, he was promoted rear-admiral. Rear-Admiral Sampson was absent from the battle of Santiago, and a controversy arose between the

friends of the two officers as to whom the credit for the victory belonged. Of this discussion neither Schley nor Sampson, personally, took any notice till the publication of a work by Edgar Stanton Maclay, entitled "History of the United States Navy." In the third volume of this work, Maclay referred to Commodore Schley as a "caitiff, poltroon, and coward." The proofs of the book had been read and approved by various naval officers, among them Rear-Admiral Sampson; and on July 22, 1901, Schley applied to the Secretary of the Navy for the appointment of a court of inquiry into his conduct. This request was granted on July 24. The court was convened Sept. 12, and its sessions lasted exactly one month. It consisted of Admiral Dewey, president, and Rear-Admirals Benham and Ramsay. The verdict, returned Dec. 14, 1901, was a disagreement; Admiral Dewey refusing to subscribe to the censures on Schley's conduct which were made by the two other members. The majority report found Schley guilty of vacillation, lack of enterprise, and disobedience; while Dewey's report praised Schley for promptness and efficient service, and gave him the credit for the destruction of Cervera's fleet. Schley filed with the Secretary of the Navy objections to the majority report, but it was nevertheless approved by Secretary Long, Dec. 20, 1901. In January, 1902, Rear-Admiral Schley appealed from the verdict to the President, who, however, confirmed Secretary Long's approval.

**Schmalkald, League of**, a defensive alliance concluded at Schmalkalden, April 4, 1531, between nine Protestant princes and 11 imperial cities, with whom other princes and imperial cities subsequently made common cause. The Elector of Saxony and the Landgrave of Hesse were appointed chiefs of the league. The object of this formidable alliance, which included nearly all the Protestant States from Denmark to Switzerland, was the common defense of the religion and political freedom of the Protestants against the Emperor Charles V. and the Catholic States. The confederation was consolidated by the "Articles of Schmalkald," drawn up by Luther at Wittenberg, in 1536.

A conflict was of course inevitable. In the war of Schmalkald that ensued (1546) and in the battle of Muhlberg (April 24, 1547) the Elector of Saxony, Philip of Hesse, and other Protestant chiefs were taken prisoners and their army routed. This caused the league to break up.

**Schmidt, Nathaniel**, an American educator; born in Hudiksvall, Sweden, May 22, 1862; settled in the United States and was Professor of Semitic Languages and Literature at Colgate University in 1888-1896. In the latter year he accepted a similar chair at Cornell University.

**Schneider, Albert**, an American botanist; born in Granville, Ill., April 13, 1863. In 1897 he was made Professor of Botany, Pharmacognosy and Materia Medica in the School of Pharmacy, Northwestern University, Chicago. His publications include many works on science.

**Schneider, George**, an American journalist; born in Pirmasens, Rhenish Bavaria, Dec. 13, 1823; engaged in journalism there, but was forced to flee the country owing to his participation in the revolution of 1848-1849. In the latter year he settled in St. Louis, Mo., where he founded the "Unsere Zeit," the first abolitionist paper in the State; removed to Chicago in 1851 and there founded the "Daily Staats-Zeitung"; was made United States commissioner for Germany and the Northern countries of Europe and consul to Denmark in 1861 to influence public opinion toward the Federal government, and also to negotiate loans for the United States. In 1862-1866 he was collector of internal revenue; in 1871-1897 was president of the National Bank of Illinois; and in 1892-1893, a director of the World's Columbian Exposition.

**Schnitzer, Edward**, better known as Emin Pasha, an African explorer; born in Oppeln, Germany, March 28, 1840. In 1878 he was appointed by Gordon Pasha governor of the Equatorial Province. He showed himself an enlightened ruler and a bitter foe to slavery. He added greatly to the anthropological knowledge of Central Africa and published valuable geographical papers. He entered the Ger-

man service, 1889, and commanded an expedition to Central Africa. He was murdered by Arab slave traders in the Kongo Free State, Oct. 20, 1892.

**Schnorr von Carolsfeld, Baron Julius**, a German painter; born in Leipsic, Germany, March 26, 1794. In 1846 he accepted the appointment of professor at the Fine Art Academy in Dresden, coupled with the directorship of the Royal Picture Gallery. Schnorr's designs for 180 pictures to illustrate the narratives of the Bible are accounted by many authorities the best things he did. His skill as a draughtsman and designer are further exhibited in stained glass windows in St. Paul's Cathedral, London, and in Glasgow Cathedral. He died in Dresden, May 24, 1872.

**Schoenborn, August**, an American architect; born in Germany about 1822. He rendered valuable service during the Civil War in preparing maps and plans for General McDowell, as well as for forts, barracks, hospitals, and other buildings for the quartermaster-general. He was best known for his plans for the dome of the Capitol. He died in Washington, D. C., Jan. 25, 1902.

**Schofield, John McAllister**, an American military officer; born in Gerry, N. Y., Sept. 29, 1831; was graduated at the United States Military Academy in 1853. During the Civil War he served in the Missouri campaign under General Lyon; commanded the Department of the Ohio; took part in the Atlanta campaign; and commanded at the battle of Franklin, Tenn., Nov. 30, 1864, for which he was made Brigadier-General and brevet Major-General in the regular army. After the war he became commander of the Division of the Pacific; was Secretary of War in 1868-1869; commanded the army of the United States as senior Major-General; and was promoted Lieutenant-General (a grade created for him) and was retired in 1895. He was the author of "Forty-six Years in the Army" (1897). He died Mar. 4, 1906.

**Scholarship**, a name given in the universities of Oxford and Cambridge, England, to foundations for maintaining scholars. A scholarship is, like a fellowship, subject to certain regula-

tions and conditions; is inferior to the latter, but superior to an exhibition. In the United States most of the colleges have endowed scholarships. In some cases the power of appointment is vested in certain college officers, and in others the scholarship is won by competitive examinations.

**Scholasticism**, in philosophy and Church history, the name given to a movement which began with the opening of cloister schools by Charlemagne (742-814), attained its greatest development in the early part of the 13th century under Aquinas and Scotus, and gradually subsided at the Renaissance. Scholasticism was the reproduction of ancient philosophy under the control of ecclesiastical discipline, the former being accommodated to the latter in case of any discrepancy between them.

**Schomburgk, Sir Robert Hermann**, a Prussian traveler; born in Freiburg, Prussian Saxony, June 5, 1804. He was trained for the mercantile profession and came to the United States in 1829; but in the following year he removed to Anegada, one of the Virgin Isles. In 1840 he returned to Guiana to survey the colony for the government, and to draw the long controverted "Schomburgk line" as a provisional boundary with Venezuela and Brazil. He was knighted. He died in Schoneberg, near Berlin, March 11, 1865. His boundary line was the subject of much argument in the British-Venezuelan arbitration tribunal in 1897.

**Schoolcraft, Henry Rowe**, an American author, noted as an Indian authority; born in Albany co., N. Y., March 28, 1793. Thirty years of his life he spent among the Indians, and through him many laws were enacted for their protection. Among his numerous publications are: "Travels in the Central Portions of the Mississippi Valley," "The Indian and His Wigwam," etc. He died in Washington, D. C., Dec. 10, 1864.

**School**, a place, house, or establishment where instruction is given in arts, sciences, languages, or any other branch of learning; a place of education and training in mental or mechanical arts. Also the pupils col-



lectively in any place of instruction, and under the discipline and direction of one or more teachers.

Very early in the settlement of the United States the cause of education received a great share of the public attention, and schools of almost every grade were established for the education of the young and for fitting older students for various professions. The first noted foundation in this connection was Harvard College, which began its existence in 1636, under patronage of the Rev. John Harvard. For 57 years this institution was without a rival.

From this time onward, despite the troublous times of the Revolution, the increase in the number of higher schools was rapid and steady, and to-day there is not a State in the Union which is not liberally supplied with facilities for its people acquiring higher education. The idea of public schools maintained by the States was also of early date, and in the Northern and Anti-Slavery States was put into practice.

In the United States any primary school conducted under the auspices or supervision of any religious denomination is termed a parochial school.

**School Board**, in the United States, a committee of citizens elected to take charge of the public schools in any district, town, or city and to control the money appropriated for school purposes.

**Schoolcraft, Henry Rowe**, an American author, noted as an Indian authority; born in Albany co., N. Y., March 28, 1793. Thirty years of his life he spent among the Indians, and through him many laws were enacted for their protection. Among his numerous publications are: "Travels in the Central Portions of the Mississippi Valley" (1825); "Indian Melodies," a poem (1830); "The Man of Bronze" (1834); "Algie Researches," a book of Indian allegories and legends (1839); and "The Indian and His Wigwam" (1848). He died Dec. 10, 1864.

**School Savings Banks**, a system for encouraging school children in saving their money. It was introduced in the United States by John H. Thiry, of what was then Long

Island City, N. Y., in 1885, being modified by him from the methods in use in the schools of Europe.

The method of depositing is simple. Teachers devote 10 minutes each Monday morning to the collection of the sums, from one cent upward, which pupils have saved for the bank. When a boy or girl has a dollar to his credit he gets a bank book free. On the last Monday of each month the teacher deposits the collections in a chosen savings institution, and there they are duly credited to the several depositors, sums of \$2 and upward bearing interest. The pupil can only draw on his account by signing a check, which must also bear the signed approval of his parent or guardian and teacher.

**Schooley's Mountain**, a mountain ridge in New Jersey; a continuation of the Blue Ridge in Pennsylvania. It is also the name of a summer resort in Morris co., N. J.; about 18 miles W. of Morristown, and 50 miles W. of New York. Here is a mountain nearly 1,200 feet high, also a chalybeate medicinal spring containing carbonated oxide of iron, with several salts of soda, lime, and magnesia.

**Schooner**, a two or three-masted vessel whose sails are of the fore-and-aft class — i. e., extended on booms. The masts have but one splice, the topgallant, if any, forming part of the topmast stick. When a schooner has none but fore-and-aft sails, she is termed a fore-and-aft schooner; if carrying a square foretopsail and fore-topgallant sail, a topsail schooner. This latter rig, formerly common, has now become rare. Square-rigged vessels have also lower fore-and-aft sails, denominated spencers or trysails, but these are small and are brailed up to the gaff when furled, instead of being lowered like those of a schooner.

The first seven-masted schooner ever constructed, the "Thomas W. Lawson," was launched in Boston, July 10, 1902.

**Schopenhauer, Arthur**, a German philosopher; born in Danzig, Feb. 22, 1788. The principal work of Schopenhauer is entitled "The World as Will and Idea." It appeared in 1819, and after being neglected for many years attracted a good deal of attention and received some sharp blows of criticism. The practical up-

shot of his system, which makes will the one sole reality, is intolerably melancholy, taking from man all that constitutes his greatness, his goodness, or his bliss. God—futility—the soul—mere names, illusions; and the world of men is to him bad, hopelessly bad, and made so. Schopenhauer published several other works of philosophy, of which the most important is "The Two Sound Problems of Ethics." He died Sept. 21, 1860.

**Schott, Charles Anthony**, an American scientist; born in Mannheim, Germany, Aug. 7, 1826; was graduated at the Polytechnic School in Karlsruhe; settled in the United States in 1848, and became connected with the United States Coast and Geodetic Survey; was sent to the International Conference on Terrestrial Magnetism, Bristol, England, in 1898. He died July 31, 1901.

**Schouler, James**, an American lawyer; born in Arlington, Mass., March 20, 1839; was graduated at Harvard University in 1859; admitted to practice at the Massachusetts bar in 1862; and in the Supreme Court of the United States in 1867; became Professor of Law in Boston University and lecturer at Johns Hopkins University. He published "The Law of Domestic Relations"; "The Law of Bailments"; "The Law of Personal Property"; "Law of Wills"; "History of the United States"; "Alexander Hamilton," etc. D., 1920.

**Schouler, John**, an American naval officer; born in Lowell, Mass., Nov. 30, 1846; was graduated at the United States Naval Academy in 1864; was chief of staff of the North Atlantic Squadron in 1895-97; and was afterward assigned to duty in the Bureau of Navigation.

**Schrader, Frank Charles**, an American geologist; born in Sterling, Ill., Oct. 6, 1860; was graduated at the University of Kansas; was an instructor of geology at Harvard University in 1895-1896. In the latter year he became connected with the United States Geological Survey; was assistant geologist in an expedition to Yukon, Alaska, in 1896, in one to Idaho and Arizona in 1897; etc. In 1901 he had charge of the geological work in the expedition to the Arctic coast of Alaska.

**Schrader, Frederick Franklin**, an American journalist; born in Hamburg, Germany, Oct. 27, 1857; settled in the United States with his parents in 1869; was the Washington correspondent of the St. Louis "Globe-Democrat" in 1891-1894, and political writer for the Washington "Post" in 1894-1896. In the latter year he became correspondent of a syndicate of Western papers.

**Schroeder, Seaton**, an American naval officer; born in Washington, D. C., Aug. 17, 1849; was graduated at the United States Naval Academy in 1868. Subsequently he served in the Hydrographic Office; was detailed to special duty in the Mediterranean; attached to the Fish Commission steamer "Albatross"; etc. He was assigned to the battleship "Massachusetts" in 1896 and served on that vessel through the Spanish-American War; was made secretary of the Naval Inspection Board; was appointed governor of Guam in 1900; promoted Rear-Admiral July 11, 1908.

**Schubert, Franz Peter**, an Austrian composer; born in Vienna, Austria, Jan. 31, 1797. The number and variety of his compositions is extraordinary. The most admired is his "Songs," and among them "The Erl King" and "Ave Maria," are perhaps the best known. But he wrote also operas, sonatas, symphonies, overtures, cantatas, six masses, etc. He left numerous works unpublished at the time of his death. Schubert spent almost his whole life at Vienna, and died there Nov. 19, 1828.

**Schumann, Robert**, a German musical composer; born in Zwickau in the kingdom of Saxony, June 8, 1810. The celebrated pianiste, Clara Wieck, became his wife in 1840. In the year following his marriage he published nearly 150 songs, many on Heine's words, and all marking an advance on previous composers in the fidelity and subtilty with which they reproduced the most delicate shades of meaning in the poems selected for musical treatment. He then commenced his great series of orchestral works, his symphony in B flat being first performed at the close of 1841. Under stress of work, however, his reason failed him, and after an attempt to drown himself

**Schurman**

in 1854 he was confined in a lunatic asylum, where he died July 29, 1856.

**Schurman, Jacob Gould**, an American educator; born in Free-town, Prince Edward's Island, May 22, 1854. He won the Gilchrist Dominion scholarship, 1875; was graduated at London University, 1877; was Professor of Philosophy in Acadia College, 1880-1882; in Dalhousie College, Halifax, 1882-1886. He became Professor of Philosophy at Cornell University, and president in 1892. In 1899 he was appointed president of the first Philippine Commission. He has published: "Kantian Ethics," "The Ethical Import of Darwinism," "Agnosticism and Religion," "A Generation of Cornell," and "Report of the Philippine Commission." Appointed United States Minister to China, 1921; ambassador to Germany, 1925.

**Schurz, Carl**, an American statesman; born in Sibbar, near Cologne, Prussia, March 2, 1829; he was a student at Bonn in 1847-1848. In the early part of 1849 he participated in the revolutionary movements in the Palatinate and at Baden, and on the defeat of the insurrection fled to Switzerland to escape arrest. About 1852 he came to the United States, and settled in Madison, Wis. In 1861 he was appointed minister to Spain, but when the Civil War broke out he resigned that he might return and join the Union army. He took part in the second battle of Bull Run, and commanded a division at Chancellorsville, May, 1863, and a corps at Gettysburg, July 1-3 of that year. He resigned from the army in 1865, and in 1869 was elected United States Senator from Missouri. He was Secretary of the Interior under President Hayes from 1877 to 1881. In 1881-1884 he was editor of the New York "Evening Post," and was conspicuous in the "Mugwump" movement of 1884. In 1892 he became president of the National Civil Service Reform League. He afterward wrote several books. He died in New York, May 14, 1906.

**Schussele, Christian**, an American artist; born in Guebwillers, Alsace, April 16, 1824. He settled in the United States in 1848, and engaged in chromo-lithography; later he devoted most of his time to painting;

**Schwabach**

and was Professor of Painting and Drawing in the Pennsylvania Academy in 1868-1879. He died in Merchantville, N. J., Aug. 20, 1879.

**Schuyler, Eugene**, an American diplomatist; born in Ithaca, N. Y., Feb. 26, 1840; was graduated at Yale University in 1859 and at the Law School of Columbia University in 1863. He was United States consul at Moscow in 1866-1869, and consul-general at Cairo, Egypt, in 1899-1890. He made a remarkable tour through Turkestan, Khokan, and Bokhara; investigated the Turkish massacres in Bulgaria; and was authorized to conclude the commercial treaties with Servia and Rumania. On his return to the United States in 1884, he engaged in literary work and published: "Peter the Great, Emperor of Russia," "American Diplomacy and the Furtherance of Commerce," etc. He died in Cairo, Egypt, July 18, 1890.

**Schuyler, Philip**, an American military officer; born in Albany, N. Y., in November, 1733. He was Federalist United States Senator from New York in 1789-1791, and was again elected a Senator, in place of Aaron Burr, in 1797. One of his daughters was the wife of Alexander Hamilton. He died in Albany, Nov. 18, 1804.

**Schuylkill**, a river of Pennsylvania, rises in the Blue Mountains and unites with the Delaware; is 120 miles long.

**Schwab, Charles M.**, an American manufacturer; born in Williamsburg, Pa., April 18, 1862. At the age of 18 he went to work for the Edgar Thomson Steel Works and rose rapidly. He was superintendent, first of the Edgar Thomson, and afterward of the Homestead Steel Works, and took management of both in 1892; became President of the U. S. Steel Corporation in 1901; resigned 1903; then organized and became president of the Bethlehem Steel Corporation and the Bethlehem Steel Co. He was interested in many large financial concerns and a liberal promoter of philanthropic activities.

**Schwabach, Articles of**, a confession of faith drawn up by Luther for the princes and cities assembled in 1529 at Schwabach. The cities of

Southern Germany, inclining to the Swiss doctrine, refused to subscribe, and these articles, adopted by the Schmalkaldic League, became thus a chief obstacle to a union between the party of Luther and Zwingli.

**Schwan, Theodore**, an American military officer; born in Germany, July 9, 1841, came to the United States and enlisted as a private in the regular army in 1857; served creditably during the Civil War; was promoted 1st lieutenant in 1864, and brevetted major for gallant and meritorious services in 1867. In 1898 he was appointed a Brigadier-General of volunteers, and won distinction in the Philippines, where he captured Cavite, Viejo, San Cruz and other places in the province of Cavite. He was promoted Brigadier-General, U. S. A., and retired in 1901.

**Schwanthaler, Ludwig Michael**, a German sculptor; born in Munich, Aug. 26, 1802. In 1835 he was appointed professor at the Munich Academy. The number of his works is singularly great, while their excellence places him in the first rank of German sculptors. He died Nov. 28, 1848, leaving his models to the nation.

**Schwartz, Berthold**, a monk of the order of Cordeliers, at the end of the 13th century, was a native of Frilbourg, in Germany, and an able chemist. It is said that as he was making some experiments with niter he was led to his invention of gunpowder, which was first applied to warlike purposes by the Venetians in 1300. There is, however, much discrepancy in the accounts of this discovery; and it is certain that Roger Bacon, who died in 1292, was acquainted with an inflammable composition similar to gunpowder.

**Schwatka, Frederick**, an American Arctic explorer; born in Galena, Ill., Sept. 29, 1849; was graduated at the United States Military Academy in 1871, and served as a lieutenant of cavalry on the frontier till 1877, meanwhile being also admitted to the Nebraska bar and taking a medical degree in New York. After exploring the course of the Yukon in Alaska, in 1884 he resigned his commission. In 1886 he commanded the New York "Times" Alaskan expedition, and as-

cended Mount St. Elias to a height of 7,200 feet; in 1891 he led another party to Alaska which opened up some 700 miles of new country in the same quarter. He published "Along Alaska's Great River," "The Children of the Cold," etc. He died in Portland, Or., Nov. 2, 1892.

**Schweinitz, Louis Davis von**, an American botanist; born in Bethlehem, Pa., Feb. 13, 1780; was educated in Germany in 1798-1812; spent all his time from childhood in the study of botany. His original researches resulted in an addition of over 1,400 new species to the catalogue of American flora. Of these more than 1,200 were fungi, which prior to his time had been little studied. He bequeathed his large and valuable collection of plants to the Academy of Natural Science of Philadelphia. He died in Bethlehem, Pa., Feb. 8, 1834.

**Schwetz**, a town of Prussia, on the Vistula, 28 miles from Russian Poland, 29 miles N. E. of Bromberg; manufactures sugar, shoes, electrical appliances, and lumber. Pop. 9,000.

**Sciatica**, acute pain produced by neuralgia following the course of the great sciatic nerve.

**Science**, in its widest significance, the correlation of all knowledge. A term applied to the generalized and systematized divisions of knowledge.

**Scilly Islands**, a group of islands belonging to Cornwall, England; about 27 miles W. S. W. of Land's End. They occupy about 30 square miles of sea room, and consist of six large islands—St. Mary's (1,523 acres), Tresco (697 acres), St. Martin's (515 acres), St. Agnes (313 acres), Bryher (269 acres), and Samson (78 acres)—and some 30 small ones, besides innumerable rocks and ledges, of which about 100 are named. They are composed entirely of a coarse type of granite, a continuation of that running through Devon and Cornwall.

Farming is practised, and early potatoes and broccoli are exported; but the principal industry now is the cultivation of narcissus and other lilies—100 tons of flowers being shipped in a single spring. In May and June, during the mackerel fishing, there is one steamer (often two) daily with cargoes of sometimes over 100,000 fish.

Politically the islands belong to the St. Ives division of Cornwall.

**Scintillation**, a twinkling of the stars; a familiar phenomenon to all who have directed their attention to the firmament above us. Under ordinary atmospheric conditions this flickering is possessed only by the so-called fixed stars. A planet shines steadily and by this mark can readily be picked out. When near the horizon, however, planets have been observed to scintillate slightly, while stars at low altitudes invariably twinkle more vigorously than stars overhead. Scintillation may be said to depend on three factors: (1) The vast distance even of the nearest stars reducing the largest of them to mere points of light. (2) The ever-changing variability in condition of the atmosphere through which the light must come to us. (3) The smallness of aperture of our eye, which receives an almost ideal single ray of light.

**Scipio, Æmilianus Africanus** (The Younger), Publius Cornelius, conqueror of Carthage; born about B. C. 185. He was the youngest son of Æmilius Paulus, and the adopted son of Publius Scipio, son of Africanus the elder. He began his military service in Spain in 151; gained great reputation soon after in Africa, in the third Punic War; and in 148, though not of fit age, was chosen consul. The next year, accompanied by Polybius and C. Lælius, he went to Africa, and at once commenced the siege of Carthage, which was heroically defended. It was entered by the Romans in the spring of 146; and at last a fire broke out that raged nearly a week. Scipio mused mournfully over these horrors, and foreboded like ruin for Rome. Scipio had a magnificent triumph on his return. He led a simple and frugal life, and during his censorship, 142-141, tried to effect reforms in the manners of his countrymen, but without success. By his bold resistance to the proposed reforms he lost the favor of the popular party; and at last, in 129, he was found dead in his bed. Suspicion of murder fell on various persons, but chiefly on Carbo, one of the most rash advocates of the Agrarian reforms.

**Scipio, Africanus** (The Elder). Publius Cornelius, one of the greatest

of the Romans, born B. C. 234. At the age of 24 he was chosen to command, as pro-consul, in Spain, where, instead of risking a battle with the superior forces of the Carthaginians, he laid siege to the city of Carthago Nova and took it the same year. In 206 he returned to Rome and was chosen consul for the next year. Sicily was given to him as his province, and having attracted by his character and success an army of volunteers, he crossed, in 204, into Africa. Hannibal was called to oppose Scipio in Africa, and the Second Punic War was terminated by the total defeat of Hannibal at the battle of Zama, Oct. 19, 202. Peace was signed the next year, and Scipio, on his return home, had the most splendid triumph which had yet been seen, and received the surname Africanus. He declined other honors which were offered him; was subsequently censor, consul a second time, and in 193 ambassador to Antiochus, King of Syria, at whose court he is said to have met Hannibal. Having accompanied his brother Lucius to the Syrian war as lieutenant in 190, they were accused of misappropriation of moneys received from Antiochus. Cato was the leader of the party opposed to Scipio, and the prosecution of Lucius was successful, but that of Africanus was dropped by the advice of Tiberius Gracchus. The popularity of Scipio had waned, and he left Rome never to return. He died at his villa, in Liternum, 183 B. C., the same year in which Hannibal died.

**Scirefacias** (Latin, "cause him to know"), a judicial writ to enforce the execution of judgments, etc., directed against a person who is called upon to show cause why something should not be done on behalf of the party in whose interest the writ is issued.

**Scirpus**, a genus of plants of the order Cyperaceæ, commonly called club rushes; the common bulrush of ponds and sluggish streams is a familiar example. There are about 300 species of this genus. See BULRUSH.

**Scirrhus**, or **Hard Cancer**, is the most frequent variety of cancer. It has its seat sometimes in the stomach, rectum, and elsewhere; but by far most frequently it attacks the female breast. If detected in time it can be removed



from the breast with every prospect of success.

**Seollard, Clinton**, an American poet: born in Clinton, N. Y., Sept. 18, 1861. In 1888 he was made assistant Professor of Rhetoric at Hamilton College, and later Professor of English Literature, resigning in 1896 to devote himself to literature.

**Scombridae**, in ichthyology, mackerel; a family of fishes, from all seas of the tropical and temperate zones. They are fishes of prey, and move about in shoals, approaching the shore in pursuit of other fishes on which they feed.

**Scone**, a parish in Perthshire, Scotland, lying on the left bank of the Tay. It is famous as the seat of one of the most venerable of Scotch abbeys. Scone is first mentioned in the beginning of the 10th century, when a council was held there in the sixth year of the reign of King Constantine. A monastery was built at Scone probably about the same period, and there was located the famous stone said to have been "Jacob's Pillow," on which the kings of Scotland were inaugurated, and which was carried by Edward I. of England to Westminster Abbey. Alexander III., the last of the ancient race of kings, and Robert Bruce, the founder of the new dynasty, were crowned at Scone, but after the accession of the House of Stuart the coronation sometimes took place in other churches. The last coronation celebrated here was that of Charles II., in 1651.

**Scopas**, an ancient Greek sculptor, founder of the later Attic school.

**Scopes, John Thomas**, an American educator. Born, 1900, at Salem, Ill. When holding position, in 1925, of professor of science in Dayton, Tenn., High School, he was indicted for teaching that evolution was an unequivocal fact in the study of biology. His indictment was made to test the Tennessee Anti-Evolution Law. The chief exponent of the state law was William Jennings Bryan (q.v.), and Clarence S. Darrow appeared as leading counsel for Scopes. The state law, after trial, was upheld in July, 1925.

**Score**, in music, compositions for several voices or instruments, or for an orchestra, so written that each part

has a separate staff for itself, these staves being placed over each other, bar corresponding for bar.

**Scoresby, William**, an English Arctic explorer; born in Cropton, near Whitby, Oct. 5, 1789; commenced a seafaring life at the age of 11 by accompanying his father, a whaling captain, to the Greenland seas; and next succeeding his father, he made several voyages to the Spitzbergen and Greenland whaling grounds. He attended classes at Edinburgh University, carried on investigations in natural history, botany, meteorology, magnetism, etc. In 1822 he surveyed 400 miles of the E. coast of Greenland. After one more voyage he retired from seafaring life in order to enter the Church; and having studied at Cambridge and been ordained (1825) at Bessingby, labored faithfully at Liverpool, Exeter, and Bradford. At length failing health compelled him to retire (1849) to Torquay; but he still continued his physical researches. For the better prosecution of these researches Scoresby made a voyage to the United States in 1847, and to Australia in 1856. He died in Torquay, March 21, 1857.



EUROPEAN SCORPION.

**Scorpio**, in astrology, the "accursed constellation," the "false sign," ominous of war, discord, and woe.

**Scorpio**, in astronomy, the eighth zodiacal constellation. It is a small but very brilliant constellation. Also the eighth sign of the zodiac, which the sun enters about Oct. 23.

**Scorpion**, in antiquity, a military engine formerly used, chiefly in the defense of a castle or town.

In Scripture, a painful scourge; a kind of whip armed with points like a scorpion's tail.

In zoölogy, any individual of the family Scorpionides. The European species are three or four inches long, and confined to the S. parts of the Continent, but scorpions have a wide geographical range in tropical and sub-tropical regions, and in Equatorial Africa and South America they grow to a length of 9 or 10 inches. They are nocturnal in habit, concealing themselves under stones, the loose bark of trees, and in crevices in walls, coming forth at dusk. They prey on other spiders and insects.

**Scorpion Fish, or Sea Scorpion**, a genus of teleostean (acanthopterous) fishes, belonging to the gurnard family. The red scorpion fish is the common form. The spotted scorpion fish is a second species, and, like the preceding form, occurs in British waters as well as in the Mediterranean, Atlantic, and the tropical seas.

**Scorpion Fly**, a genus of insects belonging to the order Neuroptera, or that of the dragon flies.

**Scorpion Shell**, the name given to the shells of certain gasteropodous mollusks, belonging to the family Strombidæ, from the projecting spines with which the shells are provided.



VELVET SCOTERS.

**Scot, Reginald, or Reynold**, one of the first and boldest writers against the belief in witchcraft, alchemy, astrology, and other prevalent superstitions of his time; born in the early part of the 16th century. He studied

at Oxford, and spent his life in the study of old and obscure mystical authors, and the pleasures of gardening, till his death. He died in 1599.

**Scoter, or Surf Duck**, a genus of sea ducks. The most familiar species is the common or black scoter. It occurs in the Arctic regions in summer. An American species of scoter is known as surf duck.

**Scotland**, the N. division of the island of Great Britain. The greatest length, from N. N. E. to S. S. W., between Dunnet Head and the Mull of Galloway, is 287 miles. The breadth varies from 140 miles to less than 30, the latter in the N., between Dornoch Firth and Loch Broom. Area 29,797 square miles, including its islands, 186,609 square miles; pop. (1928 Est.) 4,888,700. The most important cities with their pop. are Glasgow, (1928 Est.) 1,060,500; Edinburgh, (1928 Est.) 426,300; Dundee, (1928 Est.) 174,800; Aberdeen, (1928 Est.) 158,500. The islands number nearly 800. On the

E. coast they are few and small; but on the N. E. coast are the two large groups of the Orkneys and Shetlands; while on the W. coast the islands are large and numerous. The W. coast of the mainland is generally a wild, deeply indented mountain wall, presenting a series of inlets or sea lochs, while toward the middle the coast is cleft by two great inlets with openings to the S. W., the Firth of Lorn and its continuation Loch Linnhe, and the Firth of Clyde and its ramifications running far inland. The E. coast is sometimes low and sandy, but is often formed of steep rocky cliffs of considerable elevation, the chief inlets being the Firth of Forth and Tay, and the Moray Firth, Cromarty Firth, etc.

Both from the configuration of the surface and the geological structure, the country divides into three divisions, the Highlands, Central Lowlands, and Southern Uplands. The first of these divisions lies N. of a line stretching in a S. W. direction from the coast of Kincardineshire to the Firth of Clyde; the third is the country S. of a line drawn from Dunbar S. W. to Girvan; the country between these lines forms the Central Lowlands. The Highland division is remarkable for the number and elevation of its mountain

masses (many of the summits being over 4,000 feet high). The mountains best known by name are the Grampians, which form a system covering a large area, and culminating on the W. coast in Ben Nevis, 4,406 feet high; while 55 miles to the N. E. rises a remarkable cluster of summits reaching in Ben Macdui the height of 4,296 feet. The Grampians and their connections are separated from the mountains farther to the N. by Glenmore or the Great Glen of Scotland, a remarkable depression stretching quite across the country from sea to sea, and forming by the series of lakes occupying it and the Caledonian canal connecting them, a waterway from the W. coast to the E. The Southern Uplands are also essentially a mountainous region, summits of over 2,000 feet being frequent, though none exceed 3,000 feet above the sea. The central region, though much less elevated than the other two divisions, has none of the monotony usual in flat countries. Though occupying not more than a sixth of the whole surface, the fertility of the soil and its mineral treasures make this part by far the wealthiest and most populous. The slope of the ancient plateau may be determined by the direction of the principal rivers; in the N. part it is chiefly toward the E., in the S. more equally E. and W.

The chief rivers flow to the E., and enter the German Ocean, the largest being the Tweed, Forth, Tay, South Esk, North Esk, Dee, Don, Deveron, Spey, and Findhorn; those entering the sea on the W. are the Clyde, Ayr, Doon, Dee, Nith, Annan, and Esk. The Clyde in its lower course carries a vast traffic, this being rendered possible chiefly by dredging. Many of the rivers are valuable from the numbers of salmon they produce. A striking feature of the country is the great multitude of lakes, varying in size from Loch Lomond (28 square miles) to the pool-like mountain tarns. In the Northern Highlands almost every glen has its lake and every mountain hollow is filled by a stream or spring. The most valuable mineral region is the Central Lowlands, where coal and iron exist in such quantity as to make this one of the most important mineral fields of Great Britain.

The Parliament of Scotland ancient-

ly comprised all who held any portion of land, however small, from the crown by tenure of military service, till the reign of James VI., when the small barons or freeholders were excused from attendance in person, "two or more wise men" being deputed from each county in proportion to its size. Its powers were nominally extensive, but the supreme power was virtually in the king, who by his influence often entirely controlled its proceedings. The Parliament in the whole consisted of three estates—the nobility, the dignified clergy, and the lesser barons, or representatives of shires and burghs. When presbyterianism was formally ratified by law after the revolution of 1688, the ecclesiastical estate ceased to have a place in Parliament. Previously to the era of the Revolution the privy council of Scotland assumed inquisitorial powers, and even torture was administered under the sanction of its authority; but it is now entirely merged in the privy council of Great Britain. The number of peers in the Scotch Parliament was formerly 1-0, and of commons 155, and all sat in one house and voted promiscuously. At the union of the kingdoms the political system of Scotland was almost entirely incorporated with that of England.

The Court of Sessions is the supreme civil court of Scotland. The Court of Justiciary, or criminal court, composed only of judges of the Court of Sessions, is supreme in the highest sense, since its decisions in criminal cases are not subject to any review. The principal subordinate judicatories are sheriff courts, established in each county or stewartry. Sheriff-substitutes, or judges ordinary, one or more holding separate courts in different districts, decide in the first instance, subject to the review of the principal sheriff or sheriff depute, whose decisions, though final within the limits of his jurisdiction, are reviewable by the Court of Sessions. Besides the sheriff court, each county or district of a county has its justice of peace courts, in which judges decide on principles of equity in minor crimes; and in every town of any importance are bailie, dean or guild, and police courts, with limited jurisdictions.

Scotland has had the advantage of a national system of elementary educa-

tion for over two centuries, a school having been established in every parish by a law of 1696. This scheme did effective service for the education of the people, till the great increase of population, especially in towns, rendered it unequal to the task laid on it. By the passing of the Education Act of 1872 board schools have superseded the old parish schools. Other institutions are the normal or training schools and colleges of the different religious bodies, and the four universities of Edinburgh, Glasgow, Aberdeen, and St. Andrews. The first university was that of St. Andrews, dating from 1411; next came that of Glasgow (1450), then King's College and University, Aberdeen (1494), then Edinburgh University (1582), lastly Marischal College and University, Aberdeen (1593). The two Aberdeen universities were united in 1860.

Scotland was first visited by the Roman troops under Agricola, who penetrated to the foot of the Grampian Mountains. It was afterward exposed to the ravages of the Norwegians and Danes, with whom many bloody battles were fought. Various contests were also maintained with the Kings of England. Robert Bruce, however, secured the independence of the country and his title to the throne by the decisive battle of Bannockburn in 1314. He was succeeded by his nephew, Robert Stewart, and he by his eldest son, Robert. He being a weak prince, the reins of government were seized by the Duke of Albany, who stoned to death the eldest son of the king. James, his second son, to escape a similar fate, fled to France; in the year 1424 he returned to Scotland, and having excited the jealousy of the nobility, he was assassinated in a monastery near Perth. James II., his son, an infant prince, succeeded him in 1437. He was killed by the bursting of a cannon at the siege of the castle of Roxburgh. James III. ascended the throne at the age of seven years. His reign was weak and inglorious, and he was murdered in the house of a miller, whither he had fled for protection. James IV., a generous and brave prince, began his reign in 1488. He was slain at the battle of Flodden. James V., an infant of less than two years of age, succeeded to the crown. He died in 1542, and was succeeded by

his daughter, the celebrated Queen Mary. She was succeeded by her son James, who, in 1603, ascended the throne of England, vacant by the death of Queen Elizabeth, when the two kingdoms were united into one great monarchy which was legislatively united in 1707.

**Scotland, Church of.** The original Scotch Church seems to have been that of the Culdees, then in mediæval times the Roman Catholic Church, was to a certain extent the national church in Scotland. The church resisted the claims of supremacy over it put forth at one time by the Archbishop of York, at another time by the Archbishop of Canterbury; and in 1176 in self-defense cast itself into the arms of the Roman pontiff. When the Reformation struggle began, the crown remained adherent to the old faith, while the nobility tended to the new. From the war of independence Scotland had considered it good policy to guard against any aggression on the part of England by a close alliance with France, and when the Reformation began there were actually French troops in Scotland. The Protestant "Lords of the Congregation," who had taken up arms to defend their cause, applied for aid to Queen Elizabeth, who sent troops to aid them in expelling the French. By a treaty signed on July 7, 1560, it was stipulated that both the French and the English troops should withdraw from Scotland. On Aug. 24 of the same year the Scotch Parliament abolished the papal jurisdiction. The reformers adopted what is now called Presbyterian Church government, though certain superintendents were appointed whose offices after a time were swept away. The first General Assembly was held on Dec. 20, 1560.

The semi-republican constitution of the Church, which became more marked after the office of superintendent had been swept away, and the second book of discipline published (the latter event in 1578), created jealousy in the minds of regents and of sovereigns, and four or five generations of Stuart kings put forth long and determined efforts to transform Presbyterian into Episcopal government. The project cost the lives and liberties of far more people than the short, sharp Reforma-



tion struggle had done, and ended in failure. The Revolution settlement of 1690 reestablished Presbyterianism, and the General Assembly, which had been interrupted for nearly 40 years, began again to sit and has done so annually from that time till now.

In 1712 an Act of Parliament re-introduced patronage which had been swept away. The operation of this enactment was one main cause of three secessions: that of the Secession, pre-eminently so called, in 1833; the Relief in 1752; and, the greatest of all, that which created the Free Church in 1843.

The Church of Scotland claims about half the people as at least its nominal adherents. In 1784 the Patronage Act of 1712 was repealed, and each congregation now elects its own pastor. Its chief rivals in Scotland are the Free Church and the United Presbyterians, the latter resulting from a union of the old Secession and Relief Churches.

**Scots Guards**, the name of a well-known regiment of guards in the British army.

**Scott, Austin**, an American educator; born in Maumee, O., Aug. 10, 1848; was graduated at Yale University in 1869; taught German in the University of Michigan in 1873-75; was Professor of History in Rutgers College in 1883-90, president in 1890-1906, then Professor of History and Political Science; aided George Bancroft on his "History of the Constitution of the United States."

**Scott, David**, a Scotch painter; born in Edinburgh, Oct. 10, 1806. He early determined to become a painter, and in 1828 he exhibited his first picture, "The Hopes of Early Genius Dispersed by Death." In 1832 he visited London, Paris, and Geneva, most of the art cities of Italy, and finally reached Rome, where he studied during two years. Having returned to Edinburgh he continued the practice of his art. Died in Edinburgh, March 5, 1849.

**Scott, Duncan Campbell**, a Canadian poet; born in Ottawa, Ont., Aug. 2, 1862.

**Scott, Fred Newton**, an American educator; born in Terre Haute, Ind., Aug. 20, 1860; was graduated at the University of Michigan in 1884; was assistant librarian in that institution

in 1884-85 and in 1887-89; became instructor of English in the same in 1889, assistant Professor of Rhetoric in 1890, and full Professor in 1901.

**Scott, Sir George Gilbert**, an English architect; born in Gawcott, near Buckingham, July 13, 1811. His tastes drew him mainly to the study of Gothic architecture, and to him is due in a great measure its revival in Great Britain. He was very largely employed in the restoration of cathedrals, the erection of new churches, colleges, and secular public buildings. He died in London, March 27, 1878.

**Scott, Hugh Lenox**, an American military officer; born in Danville, Ky., Sept. 22, 1853; was graduated at the U. S. Military Academy in 1876, and detailed to duty in the West, where he served in numerous Indian campaigns till 1897. He was Adjutant-General of Cuba in 1898-1903; commanded in the Philippines in 1903-6; superintendent U. S. Military Academy in 1906-10; settler of various Indian troubles in 1908-13; chief of staff, U. S. A., in 1914-17; in special service in the Mexican controversy in 1915-16; and was a member of the Root mission to Russia in 1917.

**Scott, Irving Murray**, an American shipbuilder; born in Hebron Mills, Md., Dec. 25, 1837; was educated at the Baltimore Mechanics' Institute; entered a machine shop in Baltimore and became an expert draughtsman and engineer; went to San Francisco, Cal. He designed the machinery for the Comstock mines; invented and improved cut-off engines and other machines; and was the builder of the famous battleship "Oregon" besides other ships of the United States navy. In 1898 he went to St. Petersburg to advise the Russian government in regard to the building of warships. He died 1903.

**Scott, James Hutchinson**, an American naval officer; born in East Liberty, Pa., Feb. 11, 1868; was graduated at the Cadet School of the Revenue Cutter Service in 1890. At the beginning of the Spanish-American War he was made executive officer of the revenue cutter "Hudson," which took a distinguished part at the battle of Cardenas Bay, Cuba, May 11, 1898. After the war he was assigned to the



revenue cutters "Manhattan" and "Washington." He was navigator of the "Gresham," when she rescued the Portuguese bark "Fraternidada," saving 113 lives. He resigned in 1901.

**Scott, Sir Richard William**, a Canadian statesman; born in Prescott, Ontario, Feb. 24, 1825; called to the bar in 1848; member of the Senate and Secretary of State in 1873-1878; Opposition leader in Senate in 1879-1896; carried through Parliament the bill giving Roman Catholics the right to establish separate schools; author of the Canada Temperance Act; Secretary of State in 1896-1908; knighted in 1909. He died April 23, 1913.

**Scott, Robert Kingston**, an American military officer; born in Armstrong co., Pa., July 8, 1826; distinguished himself in various campaigns in the Civil War; became a Brigadier-General and brevet Major-General of volunteers in 1865. In 1868 he was elected the first governor of the reconstructed State of South Carolina, and in 1870 was reelected. In 1871 the "Ku Klux Klan" perpetrated outrages which caused him to call on the Federal authorities for aid and United States troops were sent to restore order. Later General Scott settled in Napoleon, O., where he died Aug. 13, 1900.

**Scott, Sutton Selwyn**, an American lawyer; born in Huntsville, Ala., Nov. 26, 1829; was graduated at the University of Tennessee in 1850; held a seat in the Alabama Legislature in 1857-1858 and in 1859-1860; was commissioner of Indian Affairs for the Confederacy in 1863; was again a member of the Alabama Legislature in 1884 and 1890. He also served as United States commissioner to adjudicate claims in New Mexico and Colorado in 1885-1887. He died in 1907.

**Scott, Thomas Alexander**, an American railroad manager; born in Loudon, Pa., Dec. 28, 1824; became connected with the Pennsylvania railroad in 1850; was made its general superintendent in 1858, and its vice-president in the following year. When the Civil War broke out he was placed on the staff of Gov. Andrew G. Curtin of Pennsylvania, and had charge of the sending of volunteers to the front. In April, 1861, the Secretary of War requested him to build a railroad

branch from Philadelphia to Washington, which he did in a surprisingly short time; in May, 1861, he was commissioned a colonel of volunteers and placed in command of all government telegraphs and railroads. On Aug. 1 of the same year he was appointed assistant Secretary of War. He resigned this post in June, 1862, to give his time wholly to railroad management; but reentered the service of the government in September, 1863, and directed the movement of two army corps to Chattanooga to relieve Gen. William S. Rosecrans. Though he transported these troops by a great number of trains, many of which had to run over improvised tracks connecting various lines, he accomplished the task with remarkable quickness. He was president of the Pennsylvania Railroad Company in 1874-1880. He died in Darby, Pa., May 21, 1881.

**Scott, Sir Walter**, a British author; born in Edinburgh, Scotland, Aug. 15, 1771. From the commencement of his literary career in 1796, when he published his translations of Burger's "Lenore" and "Wild Huntsman," to the year of his decease, he produced numerous works of which the border poems and "Waverley" novels are enduring monuments. In 1800 he obtained the preferment of sheriff of Selkirkshire, with about £300 (\$1,500) a year, and in 1806 he was appointed one of the principal clerks of the session in Scotland. In 1811 he built a mansion on the Tweed, to which he gave the name of Abbotsford. In 1825 the firm of Constable & Co., at Edinburgh, engaged Scott to compose a "Life of Bonaparte." It was in progress when these publishers became bankrupts, and Scott found himself involved on their behalf, and began, at the age of 55, the task of redeeming a debt exceeding \$500,000. His work, which appeared during the summer of 1827, in nine volumes 8vo., realized the sum of \$60,000, being at the rate of \$165 a day for the time he had devoted to it. After the payment of \$270,000, his creditors presented to him the library and manuscripts, curiosities, and plate, which had once been his own. In 1831 he went to Italy for his health, returning the following year. He died

**Scott**

in Abbotsford, Sept. 21, 1832, and was buried in Dryburgh Abbey.

**Scott, William Amasa**, an American educator; born in Clarkson, N. Y., April 17, 1862; was graduated at the University of Rochester in 1886; Professor of History and Political Science at the University of South Dakota in 1887-1890; instructor of History at Johns Hopkins University in 1892-1893; associate Professor of Political Economy at the University of Wisconsin in 1893-1897; then full Professor; and from 1900 Director of the School of Commerce at the University; published numerous works on his specialty.

**Scott, Winfield**, an American military officer; born near Petersburg, Va., June 13, 1783; was educated at William and Mary College, and studied law. In 1808 he was appointed captain of light artillery in General Wilkinson's division, stationed at Baton Rouge, La.; but was suspended for having accused his general of complicity with the conspiracy of Aaron Burr. At the commencement of the War of 1812 he was appointed lieutenant-colonel and fought at Queenstown Heights. In 1813 he was promoted adjutant-general; in 1814, Brigadier-General and brevet Major-General. On July 3 he took Fort Erie, on the 5th fought the battle of Chippewa, and 20 days after, that of Lundy's Lane. He took part in the operations against the Seminoles and Creeks (1835-1837), in the Nullification disturbances in South Carolina, and in the Canadian revolt of 1837-1838. In 1841 he was appointed Commander-in-Chief of the United States army, and in 1846 commanded in the Mexican War. In 1847 he won the victories of Vera Cruz, Cerro Gordo, Jalapa, Perote, Puebla, Contreras, Churubusco, Molino del Rey and Chapultepec; and seized Mexico, Sept. 14. The same year he was brevetted Lieutenant-General. In 1859 he was a commissioner to settle the San Juan dispute with Great Britain; and in 1852 was the unsuccessful candidate of the Whig party for the presidency. In 1861 he retired from office, retaining, by special act of Congress, his pay and allowance. He died in West Point, N. Y., May 29, 1866.

**Scotus Erigena, Joannes**, a renowned mediæval philosopher of the

**Scranton**

9th century. He was an Irishman. His life seems to have been passed mostly in France.

**Scovel, Sylvester**, an American journalist; born in Denny Station, Pa., July 29, 1869; was educated at the University of Michigan; went to Cuba as war correspondent 1895; was imprisoned in Havana in January, 1896, but made his escape; broke through the Spanish police and military lines 30 times; was captured by the Spaniards in February, 1897, and imprisoned in Sancti Spiritus, Cuba, but was released on the request of the United States government. He next represented the New York "World" in Greece during the war between that country and Turkey; was sent by the same paper to Spain; later to the Klondike, Alaska; and afterward to Havana. He served as correspondent throughout the Spanish war, and was later in the service of the U. S. Military government in Cuba. He died in 1905.

**Scovel, Sylvester Fithian**, an American educator; born in Harrison, O., Dec. 29, 1835; received a collegiate education; became a Presbyterian clergyman in 1857 and held various pastorates; was president and Professor of Morals and Sociology in the University of Wooster in 1883-98. He died Nov. 29, 1910.

**Scranton**, a city and county-seat of Lackawanna co., Pa.; on the Lackawanna river; 18 miles N. E. of Wilkes-barre. The city is the third largest in the State in population, and is the heart of the extensive anthracite coal section. It has a large general trade, and is one of the chief points for the shipment of anthracite coal. The manufacture of iron and steel forms the principal industry. In 1926 there were 230 manufacturing plants employing 12,578 wage earners, paying \$13,697,357 for wages, and \$33,201,799 for raw materials, and yielding products having a combined value of \$61,282,190. The city has an area of 19 square miles; gas an electric street lighting; taxable property assessed (1916) at \$84,612,280; net public debt, \$1,545,281; and in 1914-15 a public school enrollment of 24,099.

Among the public buildings are a court house,

United States government building, College of St. Thomas (R. C.), St. Cecilian Academy (R. C.), Pennsylvania Oral School for the Deaf, Lackawanna Institute of History and Science, Albright Public Library, Welch Philosophical Society, and Taylor Hospital. The city was established in 1840 by George W. and Joseph H. Scranton. Pop. (1930) 143,433.

**Screamer**, in ornithology, a popular name for any individual of the South American family Palamediidæ. They are gentle and shy, and the crested screamer is said to be domesticated, and to defend the poultry of its master from birds of prey.

**Screw**, in mechanics, a cylinder surrounded by a spiral ridge or groove, every part of which forms an equal angle with the axis of the cylinder, so that if developed on a plane surface it would be an inclined plane. The screw is considered as one of the six mechanical powers, but is really only a modification of the inclined plane.

**Screw Nails**, nails called in the trade "wood screws," and made from mild steel and iron; or from brass, copper, and zinc, when the others would be destroyed by rust.

**Screw Pine**, in botany, the genus *Pandanus*. The name is given because the prickly leaves are arranged spirally in a triple series, forming dense tufts or crowns like those of the pineapple.

**Screw Propeller**, a spiral blade on a cylindrical axis, called the shaft or spindle, parallel with the keel of vessels, made to revolve by steam power beneath the surface of the water, usually at the stern, as a means of propulsion.

**Screws, William Wallace**, an American journalist; born in Barbour, co., Ala., Feb. 25, 1839; studied law and was admitted to the bar in 1859; followed his profession till 1861, when he entered the Confederate army; participated in the capture of Fort Barancas and the navy yard at Pensacola; was promoted lieutenant of the 59th Alabama Regiment; was with Bragg's army in Kentucky and experienced much hardship at Chickamauga and Knoxville. During the last year of the war he fought with General Lee in Virginia; became a correspondent of the Montgomery "Advertiser" dur-

ing his military service, after which he was placed on the editorial staff. Later he became president of the "Advertiser" Company, and also editor-in-chief. He was secretary of state of Alabama in 1868-1872 and postmaster of Montgomery, Ala., in 1893-1897. He died Aug. 8, 1913.

**Scribe** (Hebrew, *sofer*), among the Jews, originally a kind of military officer, whose business appears to have been the recruiting and organizing of troops, the levying of war-taxes, and the like. Later the Hebrew name *sofer* seems to have been especially bestowed on a copyist of the law books. After the exile, under Ezra, apparently the copyist became more and more an expounder of the law. In Christ's time the name had come to designate a learned man, a doctor of the law. As a rule they were Pharisees, and zealous to keep the law pure from any foreign influence, even Chasdim. Among famous scribes are to be reckoned Hillel, Shammai, and Gamaliel.

**Scribner, William Marshall**, an American penman; born in Waterboro, Me., in 1824. He lived for many years in Boston, Mass.; took an active part in educational work in the West; and became widely known as the author of the system of penmanship copy-books bearing his name. He died in Chicago, Ill., Jan. 15, 1902.

**Scripture, Edward Wheeler**, an American psychologist; born in Mason, N. H., May 21, 1864; was graduated at the College of the city of New York in 1884; pursued special studies abroad; was director of the psychological laboratory of Yale University in 1892-1902; and Associate in Psychiatry in Columbia University from 1909. His investigations resulted in several important discoveries, including a method of producing anesthesia by electricity, one of measuring hallucinations, and the law of "mediate associations of ideas." He also invented a color-sight tester.

**Scrivener, Frederick Henry Ambrose**, English biblical scholar; born in 1813; died in 1891. He was educated at Trinity College, Cambridge, and graduated M. A. in 1838. In 1870 he was appointed a member of the Company of Revision of the New Testament, and in 1872 received a government pension in recognition of his

services in connection with biblical criticism. Dr. Scrivener held high rank in the philological criticism of the New Testament.

**Scrivener's Palsy.** See **WRITERS' CRAMP**.

**Scrofula**, a tedious and multiform disease, hereditary in its nature, and one of the most characteristic marks of which is a tendency to swelling of the glandular parts, which sometimes suppurate, and discharge a curdy mixed matter, and are very difficult to heal. See **KING'S EVIL**.

**Scroggs, Sir William**, a British judge, whose name is used as a synonym for an unjust, venial, and brutal judge. He became chief-justice of the King's Bench in 1678, and was specially notorious for cruelty and partiality during the trial of the unfortunates accused of complicity in the alleged Popish Plot. In 1680 he was impeached by the Commons, but removed from office by the king on a pension. He died in 1683.

**Scrub Bird**, in ornithology, the genus *Atrichia*. The English name has reference to its habitat, the dense scrubs of Western Australia. There is but one species, the noisy scrub bird, about eight inches long.

**Scruggs, William L.**, an American diplomatist; born near Knoxville, Tenn., Sept. 14, 1834; was educated at Strawberry Plains College, East Tennessee, and admitted to the bar in 1860. He was engaged in newspaper work in 1862-1871; was United States minister to Colombia in 1871-1877 and 1881-1887; United States electrical engineer to Venezuela in 1889-1893; and legal adviser and special agent of the Venezuelan government during the determination of the Anglo-Venezuelan boundary in 1893-1898, in which capacity he aided in bringing the dispute to a pacific settlement by arbitration. He died July 18, 1912.

**Scudder, Horace Elisha**, an American author; born in Boston, Mass., Oct. 16, 1838. In 1890-1898 he was editor of the "Atlantic Monthly." He died Jan. 11, 1902.

**Scudder, Samuel Hubbard**, an American naturalist; born in Boston, Mass., April 13, 1837; was graduated at Williams College in 1857 and at the Lawrence Scientific School in

1862; was assistant to Prof. Louis Agassiz at the Cambridge Museum of Comparative Zoölogy in 1862-1864; secretary of the Boston Society of Natural History in 1862-1870; and its president in 1880-87. He was palæontologist of the U. S. Geological Survey in 1886-92. He died in 1911.

**Scudery, Madeleine de**, a French romancist; born at Harve in 1607. She became one of the conspicuous figures in the literary circle of Paris, acquiring great fame by her romances "Artameme ou le Grand Cyrus;" "Ibrahim;" "Clelie," etc. She died in 1701. Her brother, **GEORGES DE SCUDEBY**, was a writer of tragedies, etc., and an enemy of Corneille. Born in 1601; he died in 1667.

**Sculpture**, the art of cutting or carving any material so as to represent form. Sculpture may be broadly divided into relief and round. In the former, single figures or groups are represented as more or less raised, but without being entirely detached from a background. According to the latter method, insulated figures, such as statues, or collections, or groups, are made, so as to be entirely independent of a background.

**Sculptured Stones**, a general name given in Great Britain to a class of monuments of the early Christian period, many of them being mere unhewn stones, with sculpturings of rude inscriptions, or symbols, or ornamental designs, corresponding in style and patterns to the illuminated decorations of Celtic manuscripts of the Gospels.

**Scuncheon**, in architecture, the stones or arches thrown across the angles of a square tower to support the alternate sides of the octagonal spire; also the cross-pieces of timber across the angles to give strength and firmness to a frame.

**Scuppers**, channels cut through the sides of a ship at the edges of the deck to carry water off the deck into the sea.

**Scurvy**, or **Scorbutus**, a disease characterized by a depraved condition of the blood. In consequence of this morbid state of the blood there is great debility of the system at large, with a tendency to congestion, hemorrhage, etc., in various parts of the body, and especially in the gums.

**Scurvy Grass**, *Cochlearia officinalis*, a cruciferous plant, growing in Great Britain and elsewhere on the seashore and on the mountains.

**Scylla**, in classical mythology, a daughter of Nisus, King of Megara. When Minos came from Crete to take vengeance for the death of his son, Androgeos, his efforts to take the city were fruitless as long as the purple lock on the head of Nisus remained unshorn. Urged by her love for Minos, Scylla cut off the fatal lock, and with it destroyed the life of her father and the safety of the city. According to one version Minos tied Scylla to the stern of his ship and drowned her; but another tale says that she was changed into a fish, which Nisus transformed into an eagle, constantly pursued. The myth was localized in the names of the port of Nisaea and the promontory Scyllæum. The "Odyssey" speaks of another Scylla, a daughter of Crataeis, as a monster with 12 feet, six necks, and six mouths, each containing three rows of teeth. This being haunted a rock on the Italian coast; a neighboring rock being tenanted by Charybdis, who thrice every day swallowed the waters of the sea, and thrice threw them up again. Like Medusa Scylla is represented in some legends as having been beautiful, and as having been changed into a monster through the jealousy of Circe or Amphitrite.

**Scylla**, and **Charybdis**, the former a famous promontory and town of Southern Italy at the entrance of the narrow strait separating Italy from Sicily. The promontory is 200 feet high, projecting into the sea, and at its base is the town. **Charybdis** (q. v.) is a celebrated whirlpool in the Straits of Messina, nearly opposite the entrance to the harbor of Messina in Sicily, and in ancient writings always mentioned in conjunction with Scylla. The navigation of this whirlpool is considered to be very dangerous, and must have been exceedingly so to the ancients.

**Scymnidae**, a family of sharks, distinguished by the absence of an anal fin, and by dorsals unfurnished with spines. The head is furnished with a pair of small spiracles. The Greenland shark is the best-known species.

**Scythians**, a name very vaguely used by ancient writers. It was sometimes applied to all the nomadic tribes which wandered over the regions to the north of the Black and the Caspian Seas, and to the east of the latter. In the 7th century B. C., they invaded Media and were driven off only after a 10 years' struggle. In the time of the Roman Empire the name Scythia extended over Asia from the Volga to the frontiers of India and China.

**Sea**, a general name for the great body of salt water which covers the greater part of the earth's surface; the ocean. In a more limited sense the term is applied to a part of the ocean which from its position or configuration is looked upon as distinct and deserving of a special name, as the Mediterranean Sea, the Black Sea, etc. The term is also occasionally applied to inland lakes, as the Caspian Sea, the Sea of Galilee, etc.

The waters of the sea cover about 143,259,300 square miles, or about five-sevenths of the surface of the earth. The solid globe or lithosphere, viewed as to its superficial aspect, may be regarded as divided into two great planes; one of these corresponds to the dry land or upper surface of the continental masses, and occupies about two-sevenths of the earth's surface; the other, corresponding to the abysmal regions of the ocean, is depressed over  $2\frac{1}{2}$  miles below the general level of the continental plane, and occupies about four-sevenths of the earth's surface. The transitional area, uniting these two planes, forms the sides or walls of the ocean basins, and occupies about one-seventh of the earth's surface. Were the solid crust of the earth to be reduced to one uniform level by removing the elevated continental masses into the depressed abysmal areas, the surface of the earth would then be covered by a universal ocean or hydrosphere with a depth of about 2 miles. The bulk of water in the whole ocean is estimated at 323,800,000 cubic miles. See OCEAN.

The temperature of the surface waters of the ocean varies from  $23^{\circ}$  F. in the polar regions to  $85^{\circ}$  or  $86^{\circ}$  in equatorial regions. The temperature of the water at the bottom of the ocean over the abysmal areas ranges from  $32.7^{\circ}$  F. to  $36.8^{\circ}$  F. In the open ocean



the temperature usually decreases as the depth increases, the coldest water being found at the bottom. In enclosed or partially enclosed seas, cut off by barriers from the great ocean basins, the temperature remains uniform from the height of the barrier down to the bottom. In regions where there are heavy rains, or where rivers pour fresh water into the sea, alternating layers of colder and warmer water have been observed within a hundred fathoms from the surface.

The circulation of oceanic waters is maintained by the motion of the prevailing winds on the surface layers. In the oceanic areas the prevailing winds are governed by the large anticyclonic areas situated toward the centers of the North and South Atlantic and North and South Pacific. The winds blow out from and around these anticyclonic areas. In the Southern Hemisphere the warm salt water of the tropical regions is driven to the S. along the E. coasts of South America, Africa, and Australia, till on reaching a latitude of between 50° and 55° S. it sinks on being cooled and spreads slowly over the floor of the ocean to the N. and S. A similar circulation takes place in the Northern Hemisphere, though much modified by the peculiar configuration of the land masses; the cold salt water at 30° F. which occupies the deeper parts of the Arctic basin is largely made up of the dense Gulf Stream water, which sinks to the bottom on being cooled in the Norwegian Sea. The water evaporated from the sea surface is borne to the land masses and condensed on the mountain slopes. It is estimated that over 6,500 cubic miles of this water is returned to the sea by rivers annually, bearing along with it a burden of soluble salts and earthy matters in suspension; in this way the ocean has in all probability become salt in the course of ages. The saltiest waters are found in the regions of greatest evaporation; for instance, in the Red Sea, Mediterranean, and in the trade-wind regions of the great ocean basins.

**Sea Anemone**, the popular name given to a number of animals of the sub-kingdom Cœlenterata and class Actinozoa. They are among the most interesting organisms met with on the sea beach, and in aquaria form a great

attraction. All sea anemones, however varied in coloration or form, present the essential structure and appearance of a fleshy cylinder, attached by its base to a rock or stone, and presenting at its free extremity the mouth, surrounded by a circlet of arms or tentacles. With these tentacles, in some cases exceeding 200 in number, they seize and secure their food which they paralyze by means of the thread cells, common to them with all Cœlenterata. The sea anemones resemble the Hydra in their marvelous powers of resisting injuries and mutilation. Thus if a sea anemone be divided longitudinally, a new animal will in due time be formed out of each half. They appear singularly insusceptible also to the action of hot or cold water, and seem to be wonderfully long-lived.

**Sea Bear**, a name sometimes given to the polar bear; also to a kind of seal, on account of its appearance.

**Sea Buckthorn, or Sallow Thorn**, large shrubs or trees with gray silky foliage and entire leaves. There is but one known species, sometimes called the sea buckthorn, a large thorny shrub or low tree, a native of parts of the sandy sea coasts of England and the continent of Europe, and found also throughout a great part of Tartary. It is sometimes planted to form hedges near the sea, growing luxuriantly where few shrubs will succeed. The berries are orange colored and are gratefully acid.

**Seabury, Samuel**, an American clergyman; born in Groton, Conn., Nov. 30, 1729; was graduated at Yale in 1748; studied medicine at Edinburgh; and received deacon's and priest's orders in England in 1753; in 1757 he was promoted to the "living" of Jamaica, Long Island, and 10 years later to that of Westchester, N. Y. He removed to New York, where he made his medical knowledge contribute to his support, acted as chaplain of the King's American Regiment, and wrote a series of pamphlets which earned for him the special hostility of the patriots. On March 25, 1783, the clergy of Connecticut met at Woodbury and elected Seabury bishop; and for 16 months he waited vainly for consecration. On Nov. 14, 1784, he was consecrated at Aberdeen. Bishop Sea-

bury's jurisdiction embraced Rhode Island as well as Connecticut, and he acted also as rector of St. James's Church, New London. In 1792 he joined with three bishops of the English succession in consecrating a fifth, Bishop Claggett, through whom every American bishop derives from Seabury and the Scotch Church. He died Feb. 26, 1796.

**Sea Dragon**, in ichthyology, *Pegagus draconis*, common in the Indian Ocean. The popular name has reference to the resemblance of this fish to the mythical dragon.

**Sea Eagle**, a name applied to one or two members of the eagle family; but probably with most distinctive value to the white-tailed eagle or erne, found in all parts of Europe. The American bald-headed eagle from its frequenting the seacoasts is also named the sea eagle.

**Sea Elephant**, a large seal, called also bottle-nosed seal and seal elephant. It is the largest of the seal family, being larger than an elephant. The average length of the male is 12 to 14 feet, but some of 20 and 25 feet are mentioned. The female is generally about 10 feet long. It gets its name from its size and from its proboscis, which stretches out a foot or more, somewhat like the trunk of an elephant. The sea elephant was once found in abundance at Heard's Island in the Southern Indian Ocean, and at the Falkland and South Shetland Islands and other islands in the South Atlantic, and thousands of barrels of oil were brought from there every year, but the elephants were hunted so persistently that few are now left. It was once common on the coast of California, but is now seldom seen.

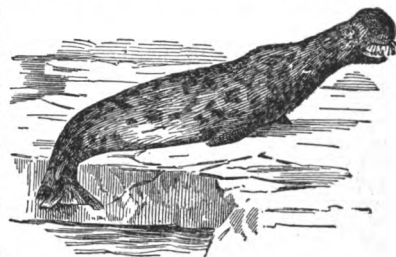
**Sea Hare**, the popular name of a genus of gasteropodous mollusca. These animals are slug-like in appearance, and derive their popular name from the prominent character of the front pair of tentacles, which somewhat resemble the ears of a hare.

**Sea Horse**, a popular name for the hippopotamus and the walrus. Also a small pipe-fish constituting the genus *Hippocampus*, and so named from its head resembling that of a horse. It has a prehensile tail by which it clings to weeds and other supports.

**Sea Kale**, a species of colewort, called also sea cabbage. It is a native of the seacoasts of Europe, and is much cultivated in gardens as a table vegetable.

**Seal**, an impression made on paper, clay, wax, or other substance, by means of a die of metal, stone, or other hard material. The stamp which yields the impression is frequently itself called the seal.

**Seal**, in zoölogy, the family Phocidæ, or seal tribe, are, of all four-limbed mammiferous animals, those which display the most complete adaptation to residence in the water. The seal has considerable resemblance to a quadruped in some respects, and to a fish in others. The head is round, and the nose, which is broad, resembles that of a dog, with the same look of intelligence and mild and expressive



HOODED SEAL.

physiognomy. It has large whiskers, oblong nostrils, and great black sparkling eyes. It has no external ears, but a valve exists in the orifices, which can be closed at will, so as to keep out the water; the nostrils have a similar valve; and the clothing of the body consists of stiff glossy hairs, very closely set against the skin. The body is elongated and conical, gradually tapering from the shoulders to the tail. The spine is provided with strong muscles, which bend it with considerable force; and this movement is of great assistance to the propulsion of the body. There are many species of these animals; some are found in almost every quarter of the globe, but chiefly in the frigid or temperate regions.

The common seal, abundant in the cool and frigid regions, is three to five feet long, and is much hunted for its skins, and for its oil and flesh. The skins though their covering is hair, not fur, are much valued. The sea lion is found on both coasts of the Pacific from California and Japan N., and there is an Antarctic species. The S. fur seals have been nearly exterminated. The celebrated N. species which yields the valuable sealskins of commerce, is confined to the North Pacific, breeding only on two of the Pribilof Islands, in Bering Sea, and two of the Commander Islands.

**Sealed Orders**, written instructions, generally to naval officers. The custom of having warships sail "under sealed orders" has arisen from the desire of maritime powers to prevent their plans from becoming known to the enemy. In the American navy such orders come from the President and are delivered to a commander of a ship or squadron by a confidential messenger who knows nothing of their contents. Sailing under sealed orders is now the common naval practice in time of war.

**Sea Lemon**, *Doris*, a genus of gastropodous mollusca. It is destitute of a shell, and moves by means of a broad ventral foot. The gills exist in the form of a circle of plumes in the middle of the back, at the posterior extremity of the body, and can be retracted at will within the body. The name sea lemon has been applied to these mollusks from their usually yellow color and somewhat lemon-like shape.

**Sea Letter**, a document issued from the custom house, carried by every neutral ship on a foreign voyage in time of war. It specifies the nature and quantity of the cargo, the place whence it comes, and its destination.

**Sealing Wax**, a composition of colored shellac or resin, for sealing or securely fastening letters or packets.

**Sea Lion**, a popular name for the genus *Otaria*; specifically, the hair seal of the Pribilofs, or Steller's sea lion. It is destitute of fur, and its skin is of little value, but the hide, fat, flesh, sinews, and intestines are all useful to the Aleutian islanders. Sea lions are found round Kamchatka

and the Asiatic coast to the Kurile islands, and there is a colony of them at San Francisco protected by the National government.

**Sea Mat, or Hornwrack**, *Flustra*, a genus of Molluscoida. The sea mat, which presents the appearance of a piece of pale brown seaweed, is a compound organism, produced by a process of continuous gemmation or budding from a single primitive polypide, which latter was in turn developed from a true egg.

**Sea Mouse**, *Aphrodite*, a genus of dorsibranchiate Annelids or marine worms. The most notable feature in connection with the sea mouse consists in the beautiful iridescent hues exhibited by the hairs or bristles which fringe the sides of the body. The sea mouse inhabits deep water, and may be obtained by dredging, though it is frequently cast up on shores after storms.

**Sea Mussel**, a family of mollusks, comprising *acalepha* which have the shell equivalved, oval or elongated, and the epidermis thick and dark. They seek concealment, and spin a nest of sand, or burrow in mud banks. There are more than 100 living, and 250 fossil species.

**Search Light**, an electric arc light the rays of which are collected into a parallel beam that may be projected to a great distance and turned in any direction.

**Search, Right of**, in international law, the right of belligerents, during war, to visit and search the vessels of neutrals for contraband of war. The government of the United States has always firmly refused to ratify the right. This question was one of the chief causes of the War of 1812.

**Search Warrant**, in law, a warrant granted by a justice of the peace to enter the premises of a person suspected of secreting stolen goods, in order to discover and seize the goods if found.

**Sears, Lorenzo**, an American rhetorician; born in Searsville, Mass., April 18, 1830; was graduated at Yale University in 1861, and at the General Theological Seminary of New York in 1864; held various charges in New England in 1864-1885; was Professor of Rhetoric and English Lit-

erature at the University of Vermont in 1885-88; and of American Literature at Brown University in 1895-1906. He died Feb. 29, 1916.

**Sea Serpent**, the name given to gigantic animals, presumably of serpentine form, which have been frequently described by sailors and others, and which are believed by many naturalists to exist in the sea depths, especially in tropical oceans.

**Sea Sickness**, a nausea, or tendency to vomit, which varies, in respect of duration, in different persons upon their first going to sea. Its exact cause is imperfectly understood, and preventive and curative measures are many and conflicting.

**Seaside Grape**, a small tree which grows on the sea coasts of Florida and the West Indies. It has clusters of edible fruit somewhat resembling the currant in appearance, a beautiful hard wood which produces a red dye, and yields the extract known as Jamaica kino.

**Sea Snake**, any individual of the family Hydrophidae. They have depressed heads, dilated behind and covered with shields. Their bodies are covered with square plates; their tails are very much compressed and raised vertically, so as to aid them in swimming. They are very venomous; but rarely, if ever, exceed four feet in length. They are found off the coast of India in the seas around the Indian islands, and in the Pacific, but at no great distance from land.

**Season**, the alterations in the relative length of day and night, heat and cold, etc., which take place each year. In the United States there are four seasons, spring, summer, autumn, and winter. The Anglo-Saxons reckoned only three, spring, summer, and winter, the words for which are all from Anglo-Saxon; autumn was borrowed from the Romans.

**Sea Spider, or Spider Crab**, a marine crab. Its body is somewhat triangular in shape, and its legs are slender and generally long. It lives in deep water, and is seldom seen on the shore.

**Sea Surgeon, or Surgeon Fish**, so named from the presence of a sharp spine on the side and near the extremity of the tail, bearing a resemblance

to a surgeon's lancet. It occurs on the Atlantic coasts of South America and Africa, and in the Caribbean seas.

**Seaton, William Winston**, an American journalist; born in King William co., Va., Jan 11, 1785; was educated in a private academy. He early engaged in journalism; settled in Washington, D. C., in 1812, and became associated with his brother-in-law, Joseph Gales, Jr., in editing and publishing the "National Intelligencer." In 1812-1820 they were the only reporters of Congress, one working in the Senate and the other in the House of Representatives. He died in Washington, D. C., June 16, 1866.

**Seattle**, the "Queen City of the Northwest," and county seat of King co., Wash.; on the E. shore of Puget Sound, which gives it a commodious and protected deep-water harbor. Its surface is undulating, showing long ridges rising to a height of 300 ft. above sea-level, with several points still higher. Clearly in sight are the snow-capped ranges, the Olympics on the W., and the Cascades on the S. E., and Mount Rainier, altitude, 14,363 ft., on the S. The city is one of the great terminal points of the transcontinental railway systems, which here connect with steamship lines running to Alaska, Asia, Pacific islands, California, and Canada, these connections making the city the base of supplies for a large region rich in mining, lumbering, and farming interests.

The city has an area of 94 square miles; 671 miles of streets; municipal waterworks plant that cost \$11,994,000, and has 649 miles of mains; a sewer system of 459 miles; gas and electric street lighting; assessed property valuation (1916) \$212,868,707; net public debt, \$330,834; public school enrollment, (1915) 35,527; public school buildings, 79; church property valued at \$3,235,778 (census, 1906); annual cost of maintaining the city government, about \$7,000,000. Manufactures (1925) employed \$89,567,609 capital and had \$159,865,671 in value of products. In the year ended June 30, 1917, the commerce of the Washington District showed: imports of merchandise, \$198,321,257; exports, \$177,755,100. In 1916 there were 5 National banks,

having \$4,000,000 capital, \$1,390,000 surplus, and \$56,253,000 in resources. The exchanges at the clearing-house in the year aggregated \$711,535,000.

Seattle, named after an Indian chief, was settled in 1852; incorporated as a town in 1865 and as a city in 1869; entered by first railroad in 1884; had a \$15,000,000 fire in 1889; was the seat of the Alaska-Yukon-Pacific Exposition in 1909; and was one of the first cities to adopt the commission form of government and to exercise the "recall." Pop. (1930) 365,583.

**Seawell, Molly Elliot**, an American author; born in Gloucester Co., Va., Oct. 23, 1860. She commenced a literary career in 1886, and in 1890 came into prominence by "Little Jarvis," winning the \$500 prize offered by the "Youth's Companion" for a boy story. In 1895 she won the "New York Herald" prize of \$3,000 with the "Sprightly Romance of Marsac," other works include "Gavin Hamilton," "The Fortune of Pifi." D., 1916.

**Seay, Abraham J.**, an American jurist; born in Amherst co., Va., Nov. 28, 1832; was taken by his parents to Osage co., Mo., in 1835, and reared on a farm. In 1861 he entered the Union army and served throughout the war, participating in the march to the sea; became a colonel of volunteers. He served as circuit judge in 1875-1887, and as supreme judge of Oklahoma in 1890-1892; was governor of that Territory in 1892-1893; then engaged in banking, stock-growing and farming. He died Dec. 22, 1915.

**Sebastes**, a genus of fish with about 20 species, widely distributed in temperate seas. They range from one to four pounds in weight, in general appearance resemble the sea perches, and are esteemed as food.

**Sebastian, Dom**, King of Portugal; born in Lisbon in 1554; ascended the throne at three years of age, on the death of his grandfather, John III. He determined to carry on war against the Moors in Africa, hoping to effect something for Christianity and the fame of Portugal. He equipped a fleet and an army, which comprised the flower of the Portuguese nobility and sailed for Africa in 1578, at the age

of 23 years. A general engagement soon took place at Alcacer-el-Xebir and the ardor of the king bore him into the midst of the enemy. Sebastian fought with bravery, while most of his attendants were slain by his side. He disappeared; and so complete was the slaughter that not more than 50 Portuguese survived this ill fated expedition. His death is supposed to have occurred Aug. 4, 1578.

**Sebastiani, Francois Horace Bastien, Count**, a Marshal of France; born in Porta d'Ampugnano, Corsica, Nov. 10, 1772. He fought at Marengo, executed some important diplomatic service in Turkey in 1802-1803, after which he became general of brigade and was wounded at Austerlitz. In 1806 he was deputed to Turkey. But the deposition of the Sultan and the treaty of Tilsit put an end to the French intrigues in Turkey, and Sebastiani was recalled (June, 1807). He commanded the 4th French army corps in Spain, and distinguished himself in the Russian campaign of 1812 and at Leipsic. On the exile of Napoleon to Elba he gave in his adherence to the Bourbon government, but joined his old master on his return. After the revolution of 1830 he held for brief periods the portfolios of naval and foreign affairs, and the embassies to Naples and London. He died in Paris, July 20, 1851.

**Sebastopol**, or **Sevastopol**, a fortified town and seaport of European Russia, on the W. coast of the Crimea. It stands on a creek on the S. side of one of the finest bays in the world, the Etenus of Strabo, which is defended by strong forts on both sides. In 1853 Russia demanded from the Turkish government guarantees for the rights of the Greek Christians of Turkey, which the Porte refused to concede. This led to the beginning of the Crimean War, in which France, England and Sardinia took sides with Turkey. The armies of the allies effected a landing at the Bay of Eupatoria, Sept. 14, 1854. On their S. march toward Sebastopol they encountered the Russian forces, commanded by Prince Menzikoff, on the banks of the Alma. A bloody battle was fought (Sept. 20), in which the Russians were compelled to retreat. On Sept. 25 the British forces seized



Balaklava, and on Oct. 9 the regular siege of Sebastopol commenced. On Oct. 25 and Nov. 5, the Russians vainly attempted to annihilate the besieging forces in the battles of Balaklava and Inkermann, but afterward confined themselves mainly to the defensive. The final bombardment was opened Sept. 5, 1855, and lasted three days. On Sept. 8 the Malakoff and Redan were stormed and taken by the allies. The Russians, after having blown up their extensive fortifications on the S. shore of the harbor, retreated to the N. side, which the allies never seriously attempted to conquer. The latter remained inactive in their camps, and no further feats of arms were accomplished. The forces of the allies were withdrawn in the summer and autumn of 1856. By the peace of Paris (1856) Russia lost the right of navigation on the Danube, besides a strip of territory to the N. of that river, and, also, the unrestricted navigation of the Black Sea. In November, 1870, Russia, availing herself of the Franco-Prussian imbroglio, demanded and obtained from the Western Powers a revision of the treaty of Paris, in so far as it affected her restrictions in the Black Sea. It was taken from Gen. Wrangel by Russian Red Army, 1920. Pop. (Est.) 63,000.

**Sebasten, or Sebastan**, in the plural, in botany, the nuts of *Cordia myxa* and *C. latifolia*, believed to be the *Persea* of Dioscorides, and the trees themselves. The nuts are sweet, and when cut have a heavy smell. They are eaten in India.

**Secamone**, erect or climbing smooth shrubs, with opposite leaves, a cymose inflorescence and small flowers, of the order Asclepiadaceæ. They are natives of Africa, India, and Australia.

**Secchi, Angelo**, an Italian astronomer; born in Reggio, Italy, July 29, 1818, and trained as a Jesuit. In 1848 he became Professor of Physics at Georgetown College, Washington, and in 1850 at the Collegio Romano, Italy, and director of the Roman observatory, where he labored till his death. His chief discoveries were in the region of spectrum analysis and solar physics. He died in Rome, Feb. 26, 1878.

**Secession**. Whenever a State has claimed the right to withdraw from

the Union, it has based its claim on the doctrine of State sovereignty. This claim must be considered as emphatically distinct from the right of revolution, insurrection, or violent revolts, in all of which there is no claim of legal right, and the appeal of which is to force instead of to reason. In its turn, nearly every State in the Union has advanced the right of secession, and usually each has been condemned by the others as treasonable. This claim was specifically brought forward or involved in the Kentucky "Resolutions," the Hartford "Convention," and the "Nullification Ordinance." The election of Abraham Lincoln, when the political situation was flanked with sectional differences resting on State claims, was all that was necessary to change the theory of secession in the South into an attempt to effect the reality. South Carolina took the lead. No single State was prepared or willing to secede alone, but Florida, Mississippi and Alabama agreed to secede with any other State. Again South Carolina was leader, in calling a State convention, and on Dec. 20, 1860, the Act of 1788, ratifying the National Constitution, was repealed, and it was declared "that the union now subsisting between South Carolina and other States, under the name of the United States of America, is hereby dissolved." A declaration of the causes for this act was formulated, and on the 24th was adopted. The governor proclaimed "the secession of South Carolina," the same day. Mississippi was the first to follow this example, Jan. 9, 1861, then in succession came Florida, Jan. 10; Alabama, Jan. 11; Georgia, Jan. 19; Louisiana, Jan. 26; and Texas, Feb. 1, though in the case of this last State the proceedings were decidedly irregular. Virginia followed in April; Arkansas and North Carolina in May; and Tennessee in June. The Civil War was the consequence. The final issue was the victory of the government, the surrender of the Confederate to the Federal army, and the full union of the United States of America.

**Secession Church**, in Scotch ecclesiastical history, a religious body which broke off from the Established Church of Scotland in 1733. In 1820 they were reunited as the Associated

Synod, and in 1847, joining with the Relief, constituted the United Presbyterian Church.

**Second**, a military term used when an officer accepts civil employment under the state, and after 6 months is seconded, i. e., retains his rank without pay.

**Second Adventists**, a religious organization having six slightly differing branches in the United States. They are Protestants and their belief is characterized by faith that at some time in the future there will be a visible reappearance of Christ. They do not agree among themselves whether this "divine return" will be visible to all the Church, or to the whole world, or to certain elect "first fruits" of the Church. The original Adventists were called Millerites, and were followers of William Miller from 1781 till 1849. Miller promulgated a belief that the world would end and the millennium would begin in October, 1843. Many people had such implicit faith in his prophecy that they did not "plant or reap" crops, neglected their business, and spent months of time before the appointed hour in religious exercises so as to be in readiness to ascend to heaven. When Miller's prediction proved a failure, some of his followers lost faith in the doctrine, while others decided that an error in calculation had been made. Other predictions have been made since that time, and other dates have been set for the "end of the world." Disappointment, however, has not materially lessened the number of Adventists, since from 50,000 in 1843 they increased to 60,000 in 1890, and in 1925 had approximately 3,000 churches.

**Secondary Rocks**, in geology, an extensive series of stratified rocks, having certain characters in common distinguishing them from the primary rocks beneath, and the Tertiary above them.

**Secondary Schools**, educational institutions in the United States higher in grade than the common schools, and next below the grade of colleges. Under this head are classed all public high schools, academies, etc.

**Second Rome**, Aquiljar, a town of Austria. In the time of the Romans it was entrepot and commercial center

of Northern and Western Europe and the Emperor Augustus often resided there. It was taken and burned by Attila, at which time its population was reckoned at 100,000.

**Second Sight**, a gift of prophetic vision, long supposed in the Scotch Highlands and elsewhere to belong to particular persons. The most common form it took was to see the wraith, fetch, or shadowy second self of some person soon to die, often wrapped in a shroud, or attended with some other of the special circumstances of death or burial.

**Secretary Bird**, the Serpentarius secretarius, from South Africa, a bird protected by the native and English



SECRETARY BIRD.

authorities for the service it renders in destroying venomous serpents, which it kills by blows from its powerful feet and bill, though occasionally the serpent succeeds in inflicting mortal injury on its foe.

**Secretion**, in physiology, the process by which materials are separated from the blood, and from the organs in which they are formed, for the purpose either of serving some ulterior office in the animal economy, or being discharged from the body as excrement. Secretion is one of the nat-

ural functions of the living body, and is as necessary to health as nutrition. Where the secreted materials have some ulterior purpose to serve, they are known as secretions; where they are discharged from the body, excretions.

**Secret Service, United States**, a bureau connected with the Treasury Department, whose chief and almost sole object was originally to guard against the counterfeiting of money of the United States and the detection and punishment of counterfeiters. During the World War, and especially after the United States had been forced into it, the Service was most busily engaged in rounding up persons detected in unneutral and enemy practices.

**Secret Societies**, organizations that in some form or other have existed in all ages of the world's history. The Freemasons and the Odd Fellows are perhaps the best known of the secret societies in the United States. Speculative Freemasonry does not go further back than the 18th century; its objects are philanthropic and moral. There are associations similar in character to it in Tahiti and others of the Pacific Islands, and among the Foulah and the Negroes of Sierra Leone and the adjacent parts of Africa. There have been numerous associations of a secret kind formed for criminal purposes, and for mutual assistance against and in defiance of the laws of the land; the Assassins in Persia and Syria, the Thugs in India, the Camorra, the Mafia, and the Decisi (1815) in Italy and Sardinia, may be instanced.

There are perhaps no people in the world who favor secret societies more than the Chinese and the inhabitants of the United States. But while the objects of these associations in the former country are mostly political, in the latter they are predominantly social. The most powerful organization of this nature in China—indeed its ramifications extend to all parts of the world where Chinamen are allowed to settle—is the Tien-ti Hwuy (Union of Heaven and Earth), and presents many features analogous to Freemasonry, such as secret signs, solemn initiation ceremonies, peculiar observances, and so forth. Secret societies of

all kinds, and for nearly all conceivable purposes, are found in the United States, from the Vigilance Committee, formed in the Western States for the preservation of public order, to the associations in the colleges and universities.

**Section**, a distinct part or portion of a book or writing; a division or sub-division of a chapter; a paragraph; a division of a statute or other writing. Hence often applied to the sign §, used to denote such a division or sub-division. Also a distinct part or portion of a country, people, community, class, or the like; a class, a division. In that portion of the United States once general government land and surveyed by order of the National authorities, one of the portions of a square of 640 acres, or one square mile each, into which the public lands are divided. Each section is 1-36 of a township. The sections in each township are numbered. Sections are sub-divided into half-sections, quarter-sections, and even into eighths of a section. In preëempting a homestead a settler may claim a quarter section.

**Secular**, occurring or observed once in an age, century, or cycle; as a secular year. Also pertaining to an age, generation, or period of time; as secular inequality. Or pertaining to things not spiritual or holy.

**Sedalia**, city and capital of Pettis county, Mo.; on the Missouri Pacific and other railroads; 95 miles E. of Kansas City; is in a grain, live-stock, coal, and building stone section; has machine shops, railroad repair shops, flour and woolen mills, and shoe, shirt, and overall factories; contains Smith College, St. Joseph's Academy, convent, Federal Building, and Carnegie Library. Pop. (1930) 20,806.

**Sedan**, a town in France, Department of Ardennes, on the Meuse, on the frontier of Luxemburg, 164 miles N. E. of Paris. The staple industry is the manufacture of fine black cloth. Here on Sept. 2, 1870, Napoleon III. and his whole army surrendered to the Germans in the Franco-Prussian War (q. v.). Pop. (Est.) 22,000.

**Sedative**, in medicine, a remedy which allays irritability and irritation, and which assuages pain. They are used both externally and internally.

**Sedge**, an extensive genus of grass-like plants containing thousands of species, mostly inhabiting the N. and temperate parts of the globe. The greater portion of the species are marsh plants. The sedges in general are of but little utility to man. They furnish coarse fodder, which is rejected by most of the domestic quadrupeds. The decomposed roots and leaves contribute largely to turn the soil of marshes into peat.

**Sedgwick, John**, an American military officer; born in Cornwall, Conn., Sept. 13, 1813. He was graduated at the United States Military Academy in 1837; served in the Mexican and Seminole War as 1st lieutenant (1846-1847); was a lieutenant-colonel in the regular army when the Civil War began; served in the Army of the Potomac as commander of brigade and division till February, 1863, when he was placed in command of the 6th Army Corps. He distinguished himself at Fair Oaks, May 31, and June 1, 1862; took part in the Seven Days' battles, June 25 to July 1; and having displayed great bravery and skill at Antietam, Sept. 16 and 17, was promoted to Major-General in December. He was severely wounded at Antietam; took a leading part in the battles of Chancellorsville, Gettysburg, and the Wilderness; and was killed at the battle of Spottsylvania, May 9, 1864.

**Sedgwick, William Thompson**, an American biologist; born in West Hartford, Conn., Dec. 29, 1855; was graduated at the Sheffield Scientific School of Yale University in 1877; instructor of biology at Johns Hopkins University in 1880-1883; Professor of Biology at the Massachusetts Institute of Technology since 1883. He was joint author of "General Biology."

**Sedition**, a factious rising or commotion in a State, not amounting to insurrection; the stirring up or fomenting of such a commotion; the stirring up or fomenting of discontent against government, and disturbance of public tranquillity, as, by inflammatory speeches or writings; acts or language inciting to a breach of the public peace; excitement of resistance to lawful authority. Sedition comprises such offenses of this class as do not amount to treason, being without

the overt acts which are essential to the latter.

**Sedley, Henry**, an American author; born in Boston, Mass., April 4, 1835. Originally a civil engineer, he surveyed and mapped many of the streets of San Francisco, Cal., after doing which he went round the world. He afterward became a journalist, and was at one time one of the editors of the New York "Evening Post," "Times," and "Commercial Advertiser"; was founder and for a time editor of the "Round Table," which was later changed to the "Nation." He died in New York city, Jan. 18, 1899.

**See**, a diocese; the seat of episcopal authority; the jurisdiction; as, an episcopal see; the province or jurisdiction of an archbishop; as, an archiepiscopal see; the seat, place, or office of the Pope or Roman pontiff; as, the Papal See; the authority of the Pope or court of Rome; as, he was delegated by the See of Rome.

**See, Thomas Jefferson Jackson**, an American astronomer; born near Montgomery City, Mo., Feb. 19, 1866; was graduated at the University of Missouri in 1889, and at the University of Berlin in 1892; was in charge of the observatory of the University of Missouri in 1887-1889; had charge of and aided in the organization of the Yerkes Observatory of the University of Chicago in 1893-1896; was astronomer of the Lowell Observatory during the survey of the Southern heavens in 1896-1898; became Professor of Mathematics in the United States Naval Academy in 1899; and in December of that year took charge of the 26-inch equatorial telescope of the United States Naval Observatory. He completed about 45 orbits of double stars; was a Fellow of the Royal Astronomical Society; member of the American Philosophical Society; the American Mathematical Society, the Astronomische Gesellschaft, etc.; and was the author of numerous astronomical papers and books, including "Researches on the Evolution of the Stellar Systems," and "The Evolution of the Double-star System."

**Seed**, reproductive ovule of a plant. It consists essentially of the young plant or embryo, inclosed in integu-



ments. The latter consists of two seed-coats—the outer named the epispERM or testa, the inner the tegmen or endopleura; and the two together are sometimes termed the spermoderm. The embryo is the young plant contained in the seed. It consists of a general axis, one part of which is destined to form the root, the other to form the stem. The axial portion is provided with fleshy organs called cotyledons or seed-leaves, which serve to nurse the young plant before the appearance of the true leaves. Plants possessing one cotyledon are termed monocotyledonous, those having two are denominated dicotyledonous.

**Seeley, John Robert, Sir**, an English historian; born in London, in 1834; in 1869 he became Professor of Modern History in Cambridge University. He first came into notice through "Ecce Homo" (a life of Christ), in 1865, which made a great sensation and was reviewed by Mr. Gladstone; he published "Natural Religion" in 1882; and in "Lectures and Essays" (1870) he wrote on art, ethics, and education. He died in Cambridge, Jan. 13, 1895.

**Seelye, Julius Hawley**, an American educator; born in Bethel, Conn., Sept. 14, 1824. He was president of Amherst College (1876-1890), and inaugurated the "Amherst system" of self-government, which was productive of good results. He died in Amherst, Mass., May 12, 1895.

**Seelye, Laureus Clark**, an American educator; born in Bethel, Conn., Sept. 20, 1837; was graduated at Union College in 1857; studied in the Universities of Berlin and Heidelberg; became Professor of Rhetoric and English Literature in Amherst College in 1864. He was president of Smith College in 1873-1909.

**Seguin, Edouard**, an American physician; born in Clamecy, France, Jan. 20, 1812; studied medicine and surgery, devoted himself specially to the study of idiocy and the training of idiots and the insane. He settled in the United States after the revolution of 1848. In 1873 he was United States commissioner on education to the Vienna Exposition. He invented a physiological thermometer. He died in New York city, Oct. 28, 1880.

**Seidl, Anton**, a Hungarian orchestra conductor; born in Budapest, Hungary, May 6, 1850. He obtained the position of conductor at the Leipzig Opera House in 1879, through Wagner's influence. In 1882 he made a tour of Europe as conductor of the Nibelungen Opera Troupe. In 1883 he was appointed conductor at the Bremen Opera House, where he remained till 1885; when he became conductor of German opera in New York city, succeeding Dr. Leopold Damrosch. He afterward directed the concerts of the Philharmonic Society in that city, succeeding Theodore Thomas. He died in New York city, March 28, 1898.

**Seigniorage**, an ancient royalty or prerogative of the crown whereby it claimed a percentage upon the bullion brought to the mint to be coined or to be exchanged for coin. As used in the United States, the term seigniorage means the profit arising from the coinage of bullion. The government does not purchase gold bullion, but coins it on private account. There is no profit from its coinage, the face value of gold coins being the same as their bullion value; but at the present ratio of 16 to 1, the face value of the silver dollar is greater than its bullion value; therefore, when silver bullion is purchased and coined into dollars there is a profit arising from such coinage, the amount of which depends on the price paid for the bullion.

**Seismograph**, an instrument for indicating and recording violence, vertical and horizontal direction, time and length of motions and tremors on the earth's surface.

**Seismology**, the study of earthquakes. Though seismology can scarcely be said to have existed before the early part of the 19th century, it has a rapidly growing bibliography and is accumulating a store of facts and observations on which generalizations may be based. Seismic experts are sanguine that earthquake warnings in countries subject to these disturbances, will be as common and as trustworthy as the storm warnings at our seaports. See EARTHQUAKES.

**Seiss, Joseph Augustus**, an American clergyman; born in Frederick co., Md., March 18, 1823. In 1858 he was called to the Church of



the Holy Communion in Philadelphia; became eminent as a preacher and a writer on prophecy. Died, June, 1904.

**Selasphorus**, in ornithology, flame-bearers; a genus with eight species, ranging from Veragua in Central America to Mexico, thence along Western North America to Nootka Sound. The tail is spreading, and the outer tail feathers are pointed. The throat feathers are elongated at the side, and form a shield of brilliant coloring. The sound produced by their wings when in motion is a loud rattling noise, like the shrill chirrup of a locust.

**Selfridge, Thomas Oliver**, an American naval officer; born in Boston, Mass., April 24, 1804; was appointed to the United States navy in 1818, and commissioned a lieutenant in 1827. During the Mexican War he commanded the sloop "Dale" of the Pacific squadron, and took part in the engagements at Matanzas and Guaymas, and in the Civil War served on the steam-frigate "Mississippi" in the Gulf squadron. Later he was promoted rear-admiral; commanded the Mare Island navy yard in San Francisco, Cal.; and was president of the naval examining board. He was retired in 1866. Died 1902.

**Selfridge, Thomas Oliver, Jr.**, an American naval officer; born in Charlestown, Mass., Feb. 6, 1836; son of the preceding; was graduated at the United States Naval Academy in 1854. During the Civil War he was serving on board the "Cumberland" when she was sunk by the "Merri-mac" in Hampton Roads in 1862; commanded the ironclad "Cairo," which was blown up on the Yazoo river; had charge of a battery at the capture of Vicksburg; participated in both attacks on Fort Fisher, and commanded several vessels in the Mississippi fleet. He was promoted commander in 1869 and had charge of the surveys for the canal across the Isthmus of Darien in 1869-1873; was a member of the International Congress at Paris in 1876 and in 1896 was promoted rear-admiral. He was retired, Feb. 6, 1898.

**Seligman, Edwin Robert Anderson**, an American educator; born in New York city, April 25, 1861; was graduated at Columbia University in 1879; then studied abroad; was

Professor of Political Economy and Finance at Columbia University in 1891-1904; then McVickar Professor; editor of the "Political Science Quarterly."

**Seljuks**, a division of the Hoi-he collection of the Turkish tribes, who were settled on the Jaxartes and in Transoxiana in the 11th century, when they became converts to Islam. Togrul Beg, grandson of a chief named Seljuk, severely crippled the empire of Ghazni (1040); turning W. conquered Persia, and 10 years later he marched on Bagdad, to the assistance of the Abbasside Caliph. Togrul being of the orthodox Sunnite faith, was nominated by the caliph "Commander of the Faithful." Dying in 1063, Togrul was succeeded by his nephew Alp Arslan. This sovereign wrested Syria and Palestine from the rival Fatimite caliph of Egypt, and in 1071 defeated the Byzantine emperor Romanus Diogenes, and captured him. The price of his release was a heavy ransom and the cession of great part of Anatolia or Asia Minor to the Seljuk. Alp Arslan was stabbed by a captive enemy in Turkestan (1072), and was succeeded by his son Malik Shah. His reign is chiefly remarkable for the enlightened rule of his grand vizier, Nizam ul-Mulk, the schoolfellow of Omar Khayyam, the poet.

After the death of Malik (1092) the extensive empire began to break up into smaller kingdoms. During his lifetime, and that of his predecessors, powerful tributary princes had ruled over separate provinces in Syria, Kerman and Asia Minor. During the first half of the 12th century the most powerful of these provincial rulers was Sinjar, who governed Khorassan. He spent his life fighting against the Ghaznevids, the Turkestan chiefs, and the Mongols. It was the rulers of these two provinces or kingdoms who persecuted the Christian pilgrims and so provoked the Crusades, and it was the rulers of the same two kingdoms against whom the crusaders of Europe principally fought. A memorable line of rulers made Iconium their capital in the first half of the 12th century. This dynasty reached the acme of its power under Kaikavus (1211-1234), who ruled over nearly the whole of Asia Minor and extensive territories in Mesopotamia and Northern Persia.

During the reign of his son Kaik-hosran II. the poet Jelal-ed-Din Rumi flourished and the various orders of dervishes arose; and at the same time the Mongols began to threaten the E. borders of the state. From about 1243 the real sovereign power of that part of Asia was in the hands of the Mongol chiefs, Hulagu and his successors, till the rise of the Ottoman princes. These last, Turks like the Seljuks, had retreated W. before the all-conquering Mongols about the middle of the 13th century, and at the end of it they entered the service of the Seljuk ruler of Asia Minor. After that the name Ottoman superseded that of Seljuk as the appellation of the Turkish rulers. The Seljuks had, centuries before, lost a good many of their peculiarly Turkish characteristics and had become "Turkomans," "Like the Turks"; and with their conversion to Islam they adopted the Perso-Arabian civilization and customs.

**Selkirk, Alexander**, a Scotch adventurer; born in Largo, Scotland, in 1676. He was a skillful seaman, and made several voyages to the South Sea, in one of which, having quarrelled with his commander, he was put ashore on the island of Juan Fernandez, with a few necessaries, a fowling-piece, gunpowder, and shot. Here he lived alone during four years and four months, and was then rescued by Captain Woods Rogers. During the time of his remaining on the island he had nearly forgotten his native language. He returned to England in 1711, and is said to have given his papers to Defoe, who took from them his story of "Robinson Crusoe." He died on the ship "Weymouth," in 1723.

**Selling Short**, a proceeding in the stock market conducted as follows: A customer X directs broker A to sell short 100 shares of Union Pacific at par. Broker B buys it. A, not having the stock, goes to broker C, and borrows from him 100 shares of Union Pacific, giving as security \$10,000 in cash. This stock is then delivered by A to B, who pays A \$10,000 therefor. Matters then rest till Union Pacific advances or declines enough to make X wish to close his account, he then directs A to buy Union Pacific, say at 95 and A gets the stock from Broker D. The stock thus obtained is delivered to

C, who thereupon returns the money which he has had as security and \$9,500 of the amount goes to D, leaving \$500 less expenses as the profit of X on the transaction. While X is waiting to see what the market is going to do, C has the use of A's \$10,000, and under ordinary conditions pays interest on this money. This interest is called the loaning rate on stocks and is usually a little below the current rate for loans on collateral.

**Semaphore**, a kind of telegraph or apparatus for conveying information by visible signs, such as oscillating arms or flags by daylight, and by the disposition of lanterns by night.

**Sembrich, Marcella**, an Austrian opera singer; born in Lemberg, Austria, Feb. 18, 1858. Her first appearance was at Athens, where her singing attracted considerable attention. Subsequently she appeared in all the large cities of Europe with great success, and in 1883 came to the United States. She reappeared in concerts in United States in 1897-1898, and was a member of the Grau Opera Company.

**Semele**, in classical mythology, a daughter of Cadmus by Hermione. She was beloved by Jupiter; but Juno, determining to punish her rival, visited the house of Semele in the guise of her nurse, and persuaded her to entreat her lover to come to her with the same majesty as he approached Juno. Jupiter had sworn by the Styx to grant Semele whatever she required; he therefore came attended by the clouds, the lightning, and thunderbolts. Semele, unable to endure so much majesty, was instantly consumed by fire. Her child was, however, saved from the flames by Mercury. This child was called Bacchus, or Dionysos.

**Seminole**, a tribe of American Indians, originally a branch of the Creeks. In 1805, they aided in driving the Appalachians from Florida; and in 1817, they joined with the Creeks and some negroes who had taken refuge with them, ravaged the white settlements in Georgia. General Jackson, sent to punish them, took at the same time several Spanish forts, and hastened the negotiations which ended in the cession of Florida to the United States. By this cession, in 1823, the

Seminoles engaged to retire into the interior and not molest the settlers; but as the negroes continued to take refuge with them, a treaty was made with some of the chiefs, in 1832, for the removal of the whole tribe W. of the Mississippi. This treaty was repudiated by the tribe, at the instigation of Osceola, one of their chiefs. A war then commenced which ended in 1842, when the Seminoles were removed to the Indian Territory, where nearly all the members of the tribe are now settled; a few, however, are still to be found in Florida.

**Semipalatinsk, or Semipolatsk.** a fortified town of Siberia, on the Irtysh. Pop. 34,300. The province of Semipalatinsk has an area of 178,320 square miles. It is mountainous in the S. E., and consists of steppe land in the N. W. Pop. 867,500.

**Semiramis**, a queen of Assyria. As the story goes, she was a daughter of the fish goddess Derceto of Ascalon, in Syria, by a Syrian youth. Being exposed by her mother, she was miraculously fed by doves till discovered by the chief of the royal shepherds, who adopted her. Attracted by her beauty, Onnes, governor of Nineveh, married her. She accompanied him to the siege of Bactra, where by her advice, she assisted the king's operations. She became endeared to Ninus, the founder of Nineveh (about 2182 B. C.), but Onnes refused to yield her, and being threatened by Ninus, hanged himself. Ninus resigned the crown to Semiramis, and had her proclaimed Queen of Assyria. She built Babylon, and rendered it the mightiest city in the world. She was distinguished as a warrior, and conquered many of the adjacent countries. Having been completely defeated on the Indus, she was either killed or compelled to abdicate by her son Ninyas, after reigning 42 years. According to popular legend, she disappeared or was changed into a dove, and was worshiped as a divinity.

**Semites**, a name given to a group of nations closely allied in language, religion, manners, and physical features, who are represented in Gen. x. as descended chiefly from Shem, a son of Noah. Their habitat is Abyssinia, Arabia, Palestine, Phœnicia, Syria, and the countries of the Euphrates and Tigris.

**Semlin**, a town of Jugo-Slavia, on right bank of the Danube, between that river and the Save; 5 miles N. W. of Belgrade, 6 miles from the Serbian border; is the principal customs and quarantine station for travelers between Austria-Hungary and the Balkan States. Pop. about 17,000.

**Semmes, Alexander Jenkins**, an American surgeon; born in Georgetown, D. C., Dec. 17, 1828; was graduated at the National Medical College, Washington, in 1854. He later settled in New Orleans; was made a surgeon in the Confederate army in 1861, and was with Gen. Thomas J. Jackson in Virginia till 1862, when he was appointed medical inspector of the Department of Northern Virginia. In 1863 he was inspector of hospitals in the Department of Virginia. In 1870-1876 he was Professor of Physiology at the Savannah Medical College. He afterward joined the Roman Catholic Church, and in 1886 was made president of Pio Nono College, Macon, Ga.

**Semmes, Raphael**, an American naval officer; born in Charles co., Md., Sept. 27, 1809; was appointed, in 1828, a midshipman on board the "Lexington," and rose by successive steps to the rank of commander in 1855. He was nominated, in 1858, secretary to the Lighthouse Board, which situation he held when the war broke out. He then joined the Confederate service, March 26, 1861. He was ordered to take the command of a vessel built in England, which became famous as the "Alabama." The "Alabama," which had been into Cherbourg, France, for repairs, encountered outside the harbor a United States war steamer, the "Kearsarge," Capt. John A. Winslow, June 10, 1864, and the fight which took place about 9 miles out was both short and decisive. In rather more than an hour from the beginning of the fight the "Alabama" was completely disabled. The crew tried to reach the French coast with her, but failed in the attempt, and she began to sink. Commander Semmes, and some of the sailors, including 13 officers, were saved by the boats of an English steam yacht, the "Deerhound," which had accompanied the "Alabama" from Cherbourg to be a spectator of the fight. Semmes suc-

ceeded, after some difficulty, in making his way back to the Southern States; but the effectual blockade of their ports deprived him of any further chance of continuing his adventurous career. He died in Mobile, Ala., Aug. 30, 1877.

**Semnopithecus**, sacred monkeys, sacred apes; distinguished by the presence of a small functional thumb and their absence from Africa. The species are numerous, spread over almost the whole of the Oriental region.

**Senate**, in ancient history, the deliberative assembly of the Roman people; but the term has been applied to very different powers and constitutions in different countries.

In the United States the higher branch of Congress; composed of two Senators from each State, irrespective of the population therein, who are (since 1913) elected by direct popular vote. Some of the most important functions of the Senate, as distinct from the House, are the supervision of the Presidential appointments of the highest grade of public officers, the passing of judgment on all treaties contracted with foreign powers, and the sole power to try all impeachments. In the latter case impeachment proceedings must originate in the House, which presents the charges to the Senate; this, in turn, acts as the court. The Vice-President of the United States is president of the Senate, but has no vote except in the case of a tie.

In France the upper legislative chamber under Napoleon I., and Napoleon III., was called the Senate, and the name is still in use in the French republic, and also in Spanish-America.

**Seneca, Lucius Annæus**, a Roman philosopher, son of M. Annæus Seneca, an eminent rhetorician; was born in Corduba, Spain, about the beginning of the Christian era. Taken early to Rome, he became an advocate, gained some distinction, and was made questor. Under Claudius, an accusation brought against him by the infamous Messalina, led to his being banished to Corsica. Returning after an exile of eight years, he was intrusted by Agrippina with the education of her son Nero. He was made consul, A. D. 57. An attempt on Nero's part to poison him having

failed, he was drawn into the Pisonian conspiracy, accused, convicted, and condemned. Left free to choose his mode of death, he opened his veins, and gradually succumbed to syncope, A. D. 65. His second wife, Pompeia Paullina, who wished to die with him, and actually had her own veins incised for the purpose, survived him a few years.

**Seneca, Marcus Annæus**, a Roman rhetorician; father of the preceding; a native of Corduba, in Spain; born about 61 B. C. He went to Rome during the reign of Augustus, and there taught rhetoric with great success for several years. He died in Rome toward the close of the reign of Tiberius (A. D. 37).

**Seneca Indians**, a tribe of North American Indians belonging to the Iroquois, and formerly occupying Western New York and a portion of Northwestern Pennsylvania. They were once powerful; and their most famous chief was Sagoyewatha, or "Red Jacket." They now occupy reservations in Kansas.

**Senefelder, Aloys**, the inventor of lithography; born in Prague, Bohemia, Nov. 6, 1771; died in Munich, Bavaria, Feb. 26, 1834.

**Senega, or Seneka**, the dried root of the rattlesnake root.

**Senegal, or French Senegambia**, a French colony; between the Sahara and the Gambia river; extends from the Atlantic on the W. to the French Sudan on the E.; area, about 74,000 square miles. The name Senegambia has been applied to this region, being compounded from the names of the rivers, Senegal and Gambia, between which it lies. Gold, silver, copper, and quicksilver are found. Much of the soil is rich. The natives cultivate millet, maize, and rice; other products are gums, castor-beans, ground nuts, cocoanuts, rubber, and kola. The domestic animals comprise cattle, sheep, goats, and camels. The native industries are weaving and the making of bricks, pottery, and jewelry. A railway connects the coast towns of Dakar and St. Louis.

For administrative purposes the colony is divided into four communes; St. Louis (the capital and residence of the governor of West Africa), Da-

**kar**, Goree, and Rufisque; nine circles; various countries directly under the French protection; and self-governing states which have accepted the French protectorate. In October, 1899, a portion of the West Sudan was placed under the same administration as Senegal. Pop. (1926 Est.) 1,318,287.

**Senegal Jackal**, a well-marked variety of the jackal. It is larger than the common kind, more elegantly built, and has long legs.

**Senlis**, a town of N. France, Department of Oise; on the Nonette river, 34 miles by rail N. E. of Paris. The town has five gates, and its Gallo-Roman walls, 23 feet high and 13 feet thick, with those of St. Lizier and Bourges, are the most perfect in France. At each of the 16 angles of the wall is a tower. The Leaguers were beaten here in 1589 by Henry I. and Francois de la Noue, and the treaties of 1475 and 1493 were signed here. Pop. about 7,500.

**Senlac**. See HASTINGS.

**Senn, Nicholas**, an American surgeon; born in Buchs, Switzerland, Oct. 31, 1844; removed with his parents to Ashford, Wis., in 1853; was graduated at the Chicago Medical College in 1868; removed to Milwaukee, Wis., in 1874. In 1885 became professor in the College of Physicians and Surgeons, Chicago; Professor of the Principles of Surgery and Surgical Pathology in Rush Medical College in 1888, and removed to Chicago in 1891. He was made surgeon-general of Wisconsin before his removal, and served in the field during the Spanish-American War. He died Jan. 2, 1908.

**Senna**, in botany, various species of cassia with cathartic properties. Senna as a purgative has been highly recommended as certain, manageable, and convenient. In energy, it holds a middle place between the mild laxatives and drastic cathartics. It increases intestinal mucous secretion, as well as peristaltic motion, producing loose brown evacuations. Its disadvantages are its disagreeable taste, and its tendency to produce nausea, griping, and flatulence. It should never be employed in an inflammatory state of the intestinal mucous membrane.

**Sennacherib**, an Assyrian king, son of Sargon, whom he succeeded 705 B. C. He suppressed the revolt of Babylonia, and marched against the Aramean tribes on the Tigris and Euphrates, of whom he took 200,000 captive. He then reduced part of Media; rendered tributary Tyre, Aradus, and other Phœnician cities; advanced on Philistia and Egypt, and finally proceeded against Hezekiah, King of Judah, who had revolted. Yielding to panic, Hezekiah paid the tribute exacted of 300 talents of silver and 30 talents of gold. On his return to Assyria Sennacherib again attacked Babylonia and afterward reinvaded Judah. Having marched through Palestine he besieged Libnah and Lachish, and wrote a threatening letter to Hezekiah; but in consequence of a miraculous visitation, which caused the death of 185,000 of his troops, Sennacherib returned to Nineveh and troubled Judah no more. He was murdered by his own sons Adrammelech and Sharezer, 681 B. C.

**Sensation**, the change in consciousness which results from the transmission of nervous impulses to the brain.

**Sensationalism**, in philosophy, the doctrine that knowledge is the outcome of sensation.

**Sensitive Plants**, the *Mimosa pudica* and *M. sensitiva*, which possess a vegetable irritability, causing them to shrink from the touch.

**Sentence**, in law, a judgment pronounced by a court or judge on a criminal; a judicial decision publicly and officially declared in a criminal prosecution. In grammar, a sentence is the form of words in which a thought or a proposition is expressed.

**Sentinel**, or **Sentry**, a private soldier, marine, or sailor posted at a point of trust, with the duty of watching the approach of an enemy or any person suspected of hostile intentions. During the night each sentry is instructed with the "word," or "countersign"; and no person, however exalted in position, may attempt to approach or pass him without giving that as a signal.

**Sentinel Crab**, in zoölogy, *Podophthalmus vigil*, two to four inches long, from the Indian Ocean. The eyes are set on long footstalks, which, when



the animal is alarmed, are erected so as to command an extensive view.

**Seoul**, the capital of the former Korea, now Chosen; on the Han river, 75 miles from its entrance into the Yellow Sea, and 57 miles from Chemulpo, with which it has been connected by rail. It lies in a natural basin, among granite hill ranges, and is surrounded with walls. The city includes several wide, desolate squares. The royal palace and its adjuncts cover 600 acres of ground. Silk, paper, tobacco, mats, fans, and similar commodities are the principal products of native industry. There are schools for the teaching of Japanese, French, Chinese, Korean, Russian, and English, and an American Mission School. In 1926 the urban pop. was 306,363.

**Sepal**, in botany, the segments, divisions, or leaves of a calyx.

**Sequoia** (named after the American Indian Sequoyia, who invented the Cherokee alphabet), a genus of conifers, otherwise called *Wellingtonia* or *Washingtonia*, consisting of two species only—*S. sempervirens*, the redwood of the timber trade, and *S. gigantea*, the *Wellingtonia* of British gardens and shrubberies, the big or mammoth tree of the Americans. They are both natives of Western America, the latter having been discovered in the Sierra Nevada in 1852. One specimen in Calaveras Co., Cal., has a height of 325 feet, and a girth 6 feet from the ground of 45 feet. The Mariposa Grove, 16 miles south of the Yosemite Valley, contains upwards of 100 trees over 40 feet in circumference, and one over 93 feet at the ground, and 64 feet at 11 feet higher. This grove is government property. Some of these trees indicate an age of over 2,000 years.

**Seraglio**, palace of former Sultan, occupying a point of land between the Golden Horn and the Sea of Marmora, and forming the E. portion of the city of Constantinople. It is surrounded by walls nearly 3 miles in circuit, and contained government buildings, mosques, gardens, baths, as well as the Sultan's harem, which occupies its inner enclosure, and consists of a group of houses and gardens, each occupied by one of the Sultan's wives. The palace, since establishment of a republic in Turkey, is unoccupied.

**Seraphim**, according to Isaiah vi: 2-6, creatures with hands, feet, six wings, and a human voice. The seraphim were God's messengers between heaven and earth. In short, the cherubim and the seraphim originally symbolized, the former storm clouds, which concealed the deity, or winds, and the latter the lightning (Ps. civ. 3, 4.)

**Serapis**, or **Sarapis** (also found as *Osarapis*), the Greek name of an Egyptian deity, introduced into Egypt in the time of Ptolemy I. or Soter, and really a combination of the Greek Hades and Egyptian Osiris. He was not an Egyptian, but the Greek deity, with some Egyptian characters superadded; and his temple was not admitted into the precincts of Egyptian cities, finding favor only in the Greek cities founded in Egypt. The god had a magnificent temple, the Serapeum, at Alexandria, to which was attached the celebrated library; another at Memphis, in the vicinity of the cemetery of the mummies of the Apis, and another temple at Canopus. It appears that he represented or was identified with the Hesiri Api, or Osorapis, the "Osirified" or "dead Apis," who was also invested with many of the attributes of Osiris. The worship of Serapis, introduced into Egypt by the Ptolemies, subsequently became greatly extended in Asia Minor; and his image, in alliance with that of Isis and other deities, appears on many of the coins of the imperial days of Rome.

**Serele**, a town of Russian Poland, near the headwaters of the Serreyka, an affluent of the Niemen; 23 miles N. E. of Seyne; was formerly the capital of the important seignory of the Princes of Radziwik; is chiefly engaged in lumbering and minor manufacturing. Pop. about 7,000.

**Serfs**, a term applied to a class of laborers existing under the feudal system, and whose condition, though not exactly that of slaves, was little removed from it. There were two classes of laborers, the villeins and the serfs proper. The former occupied a middle position between the serfs and the free-men. A serf could not be sold but could be transferred along with the property to which he was attached. A serf could obtain his freedom by purchase, or by residing for a year and a day in a borough, or by military serv-

ice. By these various means the serf population gradually decreased. In most parts of the Continent they had disappeared by the 15th century. The extinction of serfdom in England and Scotland was very gradual. Serfdom in Russia was abolished by a manifesto of Alexander II. on March 17, 1861.

**Sergeant, Thomas**, an American jurist; born in Philadelphia, Pa., Jan. 14, 1782; was graduated at Princeton College in 1798, and admitted to the bar in 1802. He was made associate justice of the Philadelphia District Court in 1814; was Secretary of State in 1817-1819, and associate justice in the Pennsylvania Supreme Court in 1834-1846. He resumed practice in 1847. It is said that up to this time he was the only judge in Pennsylvania who had never had a decision reversed. He died in Philadelphia, Pa., May 8, 1860.

**Sergeant, or Serjeant.** In military language, the second permanent grade in the non-commissioned ranks of the army. In the United States service there are regimental as well as company sergeants. Their duties are mainly indicated by the title, which is a compound of sergeant with the superior officer or the department they are intended to serve; as, sergeant-major, color sergeant, etc.

**Sergius**, the name of several popes. Sergius I.; born in Syria, about 630, succeeded Conova in 687. He died in Rome in 701.

Sergius II., was a native of Rome, and succeeded Gregory IV. in 844. He was elected without the authorization of the Emperor Lothaire, who dispatched an army into Italy, under the command of his son Louis. But the Pope succeeded in inducing that prince to retire, after having crowned him King of Italy. He died in 847.

Sergius III., became Pope in 904, through the influence of the Marquis of Tuscany and of the notorious Roman lady, Marozia. He died in 911.

Sergius IV., was elected Pope in succession to John XVIII., in 1009. Under his rule, and in consequence of his exhortation, the Italian princes combined to drive out the Saracens from the country. In his time, also, the Normans began to enter Italy. He died in 1012.

**Serpent**, in astronomy, one of the 48 ancient constellations extending serpent-like through a wide expanse of sky. The head is under Corona borealis, the body winds through Ophiuchus, and the tail reaches the Milky Way near the constellation Aquila.

In music, an almost obsolete bass instrument of a powerful character. It is a wooden tube, about eight feet long, increasing conically from inch diameter at the mouth-piece to four inches at the open end, twisted into U-shaped turns, followed by a large circular convolution. This is covered with leather, and has a mouth-piece like a horn or trombone, and keys for the several notes to be produced. In pyrotechny, a small paper tube, filled with mealed powder or rocket composition, not very compactly driven.

**Serpent**, in zoölogy, the ophidia, an order of reptiles popularly distinguished from the rest of the class by having a very elongated body and no external limbs. They are very widely distributed, abounding in the tropics, where they attain their greatest size, absent only from the Arctic and Antarctic regions, and they are mentioned in the earliest records of the human race. The length of the body is a marked feature.

**Serpent Charming**, an art of great antiquity, confined in practice exclusively to Eastern countries. Several allusions are made to it in the Bible, and also in classical writers. The power exercised by the charmers over poisonous serpents is unquestionably remarkable, though there is little doubt that the common practice of the charmers is to extract the fangs before exhibiting their feats.

**Serpentine**, an abundant mineral occurring in one or other of its numerous varieties in all parts of the world. It contains some protoxide of iron, and other impurities which cause a great variation in color, which is often of a dull green, but is also marbled and mottled with red and purple. It takes a high polish, and is turned into ornamental articles.

**Serpent Worship**, ophiolatry; the worship of serpents as symbols or avatars of a deity, a branch of animal worship with a wide range in time and space. In modern times serpent wor-

ship is prevalent to a great extent in India, and in Haiti, West Indies.

**Serrel, Edward Wellman**, an American engineer; born in New York city, Nov. 5, 1826; was assistant engineer of the Central Railroad of New Jersey in 1845, and of the Panama Survey in 1848; superintended the building of the Niagara suspension bridge in 1850; had charge of the Hoosac tunnel in 1858; and directed the construction of the Bristol bridge over the Avon river, England. In the Civil War he served as chief engineer of the Army of the James; designed and superintended the construction of the "Swamp Angel" battery that bombarded Charleston; suggested many valuable improvements in guns and processes; and was brevetted Brigadier-General of volunteers in 1865. Subsequently he settled in New York city, as consulting railroad engineer. He died in April, 1906.

**Sertorius, Quintus**, a Roman general; a native of Nursia, in the country of the Sabines. He served under Marius in the Cimbric War, afterward in Spain, and was made quætor 91 B. c. Appointed prætor in 83, he went to Spain, where he had to retire before the forces of Sulla, and went to Africa. On the invitation of the Luistanius he returned and put himself at their head to fight for independence, and soon made himself master of the greater part of Spain. Metellus Pius was sent against him in 79, but could effect nothing; two years later Pompey joined Metellus, but Sertorius reinforced by Perpenna held out against both till 72 B. c., when he was assassinated by Perpenna, his ally.

**Serum**, the thin transparent part of the blood.

**Servetus, Michael or Servade Miguel**, a Spanish physician; born in 1509, at Villa Nuvea in Aragon, and memorable as a victim of religious intolerance. He studied at Saragossa, and at Toulouse, mingling theology with medicine. He became a successful physician and is said to have discovered the circulation of blood. He published various anti-Trinitarian works in Germany, and was imprisoned for blasphemy and heresy. While escaping to Italy he was captured at Geneva, where chiefly through Calvin's

efforts, he was condemned and burned, Oct. 27, 1553.

**Servia** formerly an Independent State, now incorporated in Kingdom of Serbs, Croats and Slovans, (Jugo-Slavia); capital, Belgrade; pop. 111,740. At the end of 1917 the position of Servia was most anomalous, because of the thrilling events concerning the country in the World War. On July 28, 1914, Austria-Hungary declared war on Servia for reasons that will appear later on; on Oct. 9, 1915, Belgrade was occupied by Austro-German troops; and two days later Servia was invaded by the Bulgarians. Between the Central Powers the autonomy of the little kingdom was completely destroyed. Servia was overrun and suffered enormously, but in Oct., 1918, her army again occupied Kish, and in Nov., 1918, Belgrade, the capital, was recaptured. Kingdom inaugurated Dec. 20, 1918.

The surface of Servia is elevated and is traversed by ramifications of the Carpathians in the N. E., of the Balkans in the S. E., and of the Dinaric Alps in the W. The summits seldom exceed 3,000 feet, though the highest reaches 6,325. The whole surface belongs to the basin of the Danube. The climate is somewhat rigorous in the elevated districts, but mild in the valleys and plains. There are extensive forests and uncultivated wastes, the forest area being 42 per cent. of the total area. The chief agricultural products are maize, wheat, flax, hemp, and tobacco. Wine is grown in the districts adjoining Hungary, and the cultivation of prunes is extensive. Lead, zinc, quicksilver, copper, iron and coal are found. The bulk of the trade is with Austria. In 1913 there were 974 miles of railway and 2,729 miles of telegraph. The great majority of the inhabitants are Slavonians, and adhere to the Greek Church. The Servian language, formerly often called the Illyrian, is a melodious Slavonic dialect closely allied to the Bulgarian and Slovenian, and forms with them the southern Slavonic group. The present constitution of Servia dates from 1889. The government is an hereditary monarchy, and the people are represented by an elected legislative assembly.

Servia was anciently inhabited by

Thracian tribes; subsequently it formed part of the Roman province of Moesia. It was afterward occupied in succession by Huns, Ostrogoths, Lombards, Avars, and other tribes. The Servians entered it in the 7th century, and were converted to Christianity in the next century. They acknowledged the supremacy of the Byzantine emperors, but latterly made themselves independent, and under Stephen Dushan (1336-1356) the kingdom of Servia included all Macedonia, Albania, Thessaly, Northern Greece, and Bulgaria. About 1374 a new dynasty ascended the throne in the person of Lazar I., who was captured by the Turks at the battle of Kossova (in Albania) in 1389, and put to death.

In the prolonged struggle for freedom from the Turkish yoke, in the early part of the 19th century two families became prominent, that of Black George, or the Karageorgevitch family, and that of Milosh Obrenovitch, both of humble origin. Milosh Obrenovitch was acknowledged Prince of Servia by Turkey in 1829, and the reins of power afterward alternated, through assassination and other causes, between the two houses. Servia took advantage of the defeat of Turkey by Russia to make war on Turkey, and by the Treaty of Berlin in 1878 Servia was recognized as independent, and the reigning prince, Milan Obrenovitch, assumed the title of king. He was defeated by the Bulgarians in 1885, abdicated in 1889, and was succeeded by his son Alexander, who wrested the royal authority from the regency early in 1903, and with his queen, Draga, was murdered by military conspirators, June 10, 1903. Peter Karageorgevitch was recalled from exile and chosen king under the title of Peter I. On Oct. 13, 1912, Servia, Bulgaria, and Greece declared war against Turkey, and Servia immediately threw her mobilized army across the border, with King Peter at its head, and engaged the unprepared Turks. See **BALKAN PENINSULA**.

Servia's subjugation was immediately caused by the assassination of Archduke Francis Ferdinand, heir to the throne of Austria-Hungary, and of his wife, the Duchess of Hohenberg, while visiting Sarajevo, Bosnia, by a Servian student, Garvio Prinzip, on

June 28, 1914, the crime later being attributed to a Servian plot. On July 23 following, Austria-Hungary sent an ultimatum to Servia, making specific demands, some of which were humiliating to the Servian national spirit; but two days later Servia conceded all of the demands save one. On July 28 Austria-Hungary declared war on Servia, and declined a peace conference proposed by Sir Edward Grey, the British Secretary for Foreign Affairs. Russia immediately began mobilizing her troops, being bound by treaty to protect Servia, and massed a considerable force on the Austrian border. On July 29 Austria-Hungary attacked Belgrade; on the 30th Germany demanded a cessation of Russian mobilization within 24 hours; on Aug. 1 Germany declared war on Russia; on the 2d German troops entered Luxemburg, and began the invasion of Belgium; and on Aug. 5, Great Britain declared war on Germany. And so the unparalleled conflict opened. For details see **APPENDIX: World War**.

**Servius Tullius**, the 6th king of Rome. According to the tradition he was the son of a slave given by the elder Tarquin to Tanaquil, his wife. He married Tarquin's daughter, and on the death of his father-in-law (578 B. C.) he was raised to the throne. He defeated the Veientes and the Etruscans, and divided the population of Rome into tribes. According to the common story Servius married his two daughters to the grandsons of his father-in-law; the elder to Tarquin, and the younger to Aruns. The wife of Aruns murdered her own husband to unite herself to Tarquin, who had assassinated his wife. Servius was murdered by Tarquin, and his own daughter Tullia ordered her chariot to be driven over the mangled body of her father (534 B. C.).

**Sesostria**, the most celebrated of the early kings of Egypt. He, on succeeding to the throne, became ambitious of military fame, and marched at the head of a numerous army to make the conquest of the world. He marched through Asia, and penetrated farther into the East than the conqueror of Darius. He also invaded Europe. In his old age, Sesostria, having grown infirm and blind, de-

stroyed himself. The time of Sesostris is placed from 1400 to 1250 B. C. Sesostris, so called by the Greeks, is identical with Rameses II., one of the most famous of the Pharaohs.

**Sesterce**, a Roman coin, the fourth part of the denarius, containing at first two libæ. The name is an abbreviation of the Latin *semis-tertius*, which was their mode of expressing two, and their custom was to derive the names of all their coins from the foundation of their money system, the *As*. Later when the denarius was made to contain 16 asses, the sesterce contained 4.

**Sethos I., or Seti**, an Egyptian monarch, the second Pharaoh of the XIX. dynasty; which lasted from 1462 B. C. to 1288 B. C. He seems to have been one of the shepherd race in the E. part of Delta. He was distinguished as a builder and a warrior, erecting the temples of Osiris at Abydos, the "hall of columns" in his palace at Karnak, and establishing the power of Egypt over Western Asia. He reigned about 30 years.

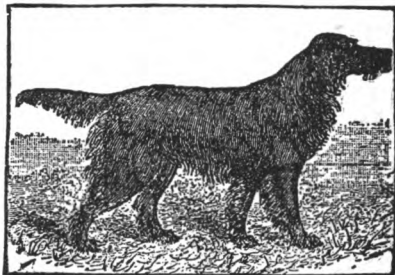
**Seton, Elizabeth Ann**, an American philanthropist; born in New York city, Aug. 28, 1774; was the founder of the order of Sisters of Charity; established the nucleus of that society at Emmitsburg, Md., in 1809, and sent the first colony of the Sisters to Philadelphia, Pa., and another to New York city in 1817. She established 20 communities. She died in Emmitsburg, Md., Jan. 4, 1821.

**Seton.** See THOMPSON-SETON.

**Setter**, a breed of dog employed in shooting, where he fills the same vocation as the pointer. The setter is divided into three varieties—the English setter, the Gordon setter, which is native to Scotland, and the Irish setter. There was also at one time a variety known as the Welsh setter, but it is now extinct, and probably never differed from the English setter.

**Seven Pines**, the name of a locality in Virginia, 6 miles from Richmond, where, May 31, 1862, the Confederates, commanded by Generals Longstreet and Stuart, defeated the Nationals under General Casey. The battle received its name from seven solitary pine trees at the spot where the fiercest fighting took place.

**Seven Sleepers**, the heroes of a celebrated legend. According to the story, during the flight of the Christians from the persecution, seven Christians of Ephesus took refuge in a cave near the city, where they were discovered by their pursuers, who walled up the entrance in order to starve them to death. They fell instead into a preternatural sleep, in which they lay for nearly 200 years. This is supposed to have taken place in 250 or 251; and it was not till the reign of Theodosius II. (447) that they awoke. They imagined that their sleep had been but of a single night; and one of the seven went secretly into the city to purchase provisions, and he was amazed to see the cross erected on the churches and other buildings. Offering a coin of Decius in a baker's shop he was arrested, his startling story not being believed till he guided the citizens to the cavern where he had left his comrades. The emperor heard from their lips enough to convince him of the life beyond the grave, whereupon they sank again to sleep till the resurrection.



SETTER "HEATHER GROUSE."

**Seventeen-Year Locust**, the *Cicada septendecim*. There is no insect known which affords such an interesting study as does this locust. He begins and ends life in the bright sunshine, but spends 17 years in the earth—more than two years in darkness for every week in light. Safely hidden from sight he gnaws away at the roots of trees, does his best to kill them, and then, emerging into the light, completes the death dealing operation by making as vicious an attack on the branches as was made on the



roots. Its habits and life history in some respects almost pass belief. When the insect emerges from the ground after its 17 years' burial it works its body rapidly backward and forward like a man trying to put on an extremely tight coat. The result of the movement is the breaking of the shell which covers the creature and the immediate appearance of its wings. The remarkable power of instinct is shown as soon as the insect is freed of its enveloping armor. It makes instantly for the nearest tree. The locusts pair at once.

The females prepare the nest by clasping a branch of moderate size and perforating it with holes by means of



SEVENTEEN YEAR LOCUST.

an awl-shaped piercing instrument with which they are provided. They repeatedly thrust this piercer obliquely into the bark and wood in the direction of the fibers, at the same time putting in motion lateral saws which detach little splinters of wood and make a fibrous lid over the whole. In each fissure made by the piercer the female deposits from 10 to 20 eggs in pairs. It takes her a quarter of an hour to prepare one nest and fill it with eggs and she usually makes between 15 to 20 fissures in one limb. She lays between 400 and 500 eggs and then dies.

The perforations made by the females in the limbs cause their death, and that orchard which receives a visit from the seventeen-year locusts soon stands a brown and blasted ruin. Six weeks after the eggs are laid they hatch. The young are grublike in form and have six legs, the first pair of which are large and are shaped like lobster claws, having strong spines beneath. On the shoulders, where 17 years later the wings appear, are little

protuberances and directly under the breast is a long beak for suction. After being hatched the young locusts deliberately loosen their hold on the limb and fall to the earth. They instantly dig their way into the ground where they seek out the tender roots of plants and trees. These they cut with their beaks and draw out the vegetable juices which constitute their sole nourishment—and thus it is for 17 long years.

The drums of the male locusts, on which they perform during their short lives above ground, are formed of convex pieces of parchment gathered into numerous fine plaits and are lodged in cavities behind the thorax. The insects play on these drums by the means of muscles which contract and relax with great rapidity. One has to hear a concert of the seventeen-year locusts to realize the numerical strength of the chorus and its tremendous volume of sound.

**Seventh-Day Baptists**, a body of believers who hold that the command to observe the seventh day of the week as the Sabbath, has never been abrogated, and is binding on Gentiles as well as on Jews. They accordingly disregard the Christian Lord's Day, and keep Saturday holy, as do the Jews. They practise baptism by immersion, and, with the exception of their views on the Sabbath, hold the doctrines of the Baptist Church. They appeared in Germany about the end of the fifteenth century and in England a few years later. They were persecuted and many imprisoned.

The churches in the United States were the result of emigration from England. The first Seventh-day Baptist Church in America was organized at Newport in 1671. A second branch was founded near Philadelphia, about 1700. A third was founded in Northern New Jersey in 1705. From these three points the denomination has spread slowly W. and S. In 1818 the General Conference adopted Seventh-day Baptists, instead of Sabbatarian, as the denominational title. The denomination reported (1915) 76 churches; 98 ministers; 8,146 members.

**Seventh-Day German Baptists**, an offshoot from the Dunkers, in Germany, about 1728. Branches were established in York and Bedford cos.,

## Seven Wonders

Pa., in 1763. Their principal settlement is Snow Hill, Franklin co., Pa.

**Seven Wonders of the World,** in ancient times, the Pyramids of Egypt, the Hanging Gardens of Semiramis at Babylon, the Temple of Diana at Ephesus, the Statue of Jupiter at Athens by Phidias, the Mausoleum, the Colossus at Rhodes, and the Pharos of Alexandria.

**Seven Years' War,** a famous European war which lasted from 1756 to 1763. As the result of a war with Prussia Maria Theresa of Austria had to cede Silesia to Frederick the Great. With a view to recover her lost territory she concluded an alliance with Russia, secured the support of Poland and Saxony, and attempted to form a closer union with France. In the meantime war broke out between France and England (1755), and George II., in order to protect his German states, concluded an alliance with Prussia, while France agreed to aid Austria against Frederick. Being informed of these negotiations Frederick resolved to anticipate his enemies. In August, 1756, he invaded Saxony, occupied the chief towns, and compelled the Saxon army to surrender. This step created a stir in the European courts, and in 1757 Austria, Russia, France, Sweden, and the German empire were in arms against Frederick, while he had no ally but England and a few German states. In 1757 Frederick marched into Bohemia and gained a bloody battle at Prague (May 6). Soon after, however, the Austrians under Daun defeated Frederick at Kollin (June 18), relieved Prague, and forced the Prussians to retreat to Saxony and Lusatia. The French army, after defeating Frederick's German allies (under the Duke of Cumberland) at Hastenbeck, united with the imperial forces; Frederick met them at Rossbach and routed both armies on Nov. 5. He then hurried back to Silesia, which was occupied by the Austrians, and vanquished a superior army under Daun at Leuthen (Dec. 5), thus recovering Silesia. While Frederick was thus occupied in the S. and W., his general Lehwald had successfully repelled the Swedes and Russians on the N. and E.

The next campaign was opened in February, 1758, by Ferdinand, Duke

## Seven Years' War

of Brunswick, who, at the head of Frederick's allies, opposed the French in Lower Saxony and Westphalia. He defeated the French at Krefeld in June, and ultimately drove the enemy behind the Rhine. Frederick, driven out of Moravia, defeated the Russians, who had advanced to Zorndorf, in Brandenburg, was defeated in turn by Daun at Hofkirchen, but before the end of the year drove the Austrians from Silesia and Saxony. Louis XV. and his mistress, the Marchioness de Pompadour, were bent on continuing the war, and concluded a new alliance with Austria, Dec. 30, 1758. Frederick, however, had also obtained a new treaty with Great Britain, which promised him a large yearly subsidy. The new campaign was opened in March, 1759, Prince Henry, Frederick's brother, marching into Bohemia, where he dispersed the hostile forces, and captured immense quantities of military stores. The Russians, having defeated the Prussian general Wedel near Zullichau (July 23), advanced to Frankfort-on-the-Oder. Frederick hastened to meet them in person, and had already defeated them at Kunersdorf (Aug. 12) when his victory was snatched from him by the Austrians under Laudon, who inflicted on him a defeat such as he had never sustained before. Frederick's position was now extremely precarious. The Russians were victorious in his hereditary states, Daun was in Lusatia with a large army, and Saxony was overrun by the imperial troops. In the W. Frederick's allies had been more successful. On Aug. 1 Ferdinand gained a splendid victory at Minden over the French troops under Contades and Broglie. On the same day his nephew defeated the French at Gohfeld, and they were driven over the Lahn on one side and over the Rhine on the other. The Swedes, also, who, after the battle of Kunersdorf invaded Prussian Pomerania, were driven by Manteuffel and Platen under the cannon of Stralsund. The campaign of 1760 seemed at first to forebode ill success to Frederick. While he himself was engaged in Saxony Fouque suffered a defeat in Silesia, in consequence of which the Austrians occupied the whole country. Frederick thereupon gave up Saxony in or-

der to recover Silesia. On Aug. 15 he defeated Laudon at Liegnitz, by which he effected his purpose of recovering Silesia. He then returned to Saxony and attacked the imperial forces at Torgau, on the Elbe (Nov. 3), defeated them in a bloody engagement and went into winter quarters in Saxony. The Russians also were forced to retire to Poland, and Ferdinand defeated the French at Marburg (July 31).

In the campaign of 1761 the operations of Ferdinand of Brunswick and the French on the Rhine consisted of alternate advances and retreats, and the Russians and Austrians were so enfeebled that they failed to make any impression on Frederick's remnant of an army. In the campaign of 1762 the French were defeated (June 24) at Wilhelmsthal, and Cassel surrendered to the allies on Nov. 1. Two days after this the preliminaries of peace between Great Britain and France were signed, and the peace itself was confirmed at Paris, Feb. 10, 1763. After a short negotiation Frederick concluded a peace with Austria and Saxony at Hubertsburg (Feb. 15), by which he retained Silesia. The war in Europe was accompanied by war by sea and land between the French and British abroad, the result of which was to give Great Britain a decided superiority over France both in America and India.

**Severus, Lucius Septimius**, a Roman emperor; born near Leptis Magna, on the coast of Africa, April 4, 146. After holding the highest offices under Marcus Aurelius and Commodus, he obtained command of the legions in Gaul, and when in 193 news came of the murder of Pertinax, he was proclaimed emperor. Meanwhile the Roman legions in Asia had proclaimed their general, Pescennius Niger, emperor. Severus overthrew him at Issus in 194. After a successful campaign against the Parthians, he returned to Rome, but was soon engaged in a struggle with another rival, Clodius Albinus, whom he conquered at Lugdunum in 197. New campaigns in the E. were ended by the capture of Ctesiphon, the Parthian capital. Severus then spent several years (202-208) at Rome, gratifying the people by his magnificence, and

distributing large donations to the troops. In 208 he hastened to Britain to quell a rebellion there; but after an undecisive campaign, and just as he was planning a new attack on the Caledonians, he died in Eboracum (York), Feb. 4, 211.

**Severus, Wall of**, the name given to the wall or barrier formed at the boundary of the Roman empire in Britain between the Solway and the Tyne by the Roman emperor Severus about A. D. 210, following the line of a similar structure made in the reign of Hadrian (A. D. 120), and usually called Hadrian's Wall.

**Seville** (Spanish Sevilla), a famous city of Spain; capital of the province of the same name; on the left bank of the Guadalquivir, 80 miles from its mouth, and 353¾ miles S. S. W. of Madrid. The river is crossed by a fine iron bridge connecting Seville with Triana, one of its suburbs. The city has many fine promenades, of which the most frequented are the Alameda Vieja, El Paseo de Christina and Las Delicias.

The Cathedral (1401-1519), on the site of the grand mosque of the Moors, is one of the most imposing Gothic edifices in Europe. It is 431 feet long, 315 feet wide, 145 feet high under the transept dome, has seven aisles, 93 windows, several of which are beautifully painted, and an organ with 5,400 pipes. It contains the "Biblioteca Columbiana" of 20,000 volumes, bequeathed by Ferdinand Columbus, and is rich in paintings by Murillo, Campana, the Herreras, and other masters of the school of Seville. The Alcazar was the ancient Moorish palace. Some parts of its interior are as fine as the Alhambra. The Lonja, or Exchange, is a square building, each side 100 feet long, in which all the American archives are preserved. Other buildings are the Torre del Oro, a 12-sided tower on the river, so called from its having received the cargoes of the American treasure ships; the palace San Telmo, built by Ferdinand Columbus, and the great amphitheater, capable of accommodating, as a Plaza de Toros, 18,000 people.

One of the greatest monuments of antiquity is the Canos de Carmona, an aqueduct on 410 high arches, which conveys water from Alcala de Gua-



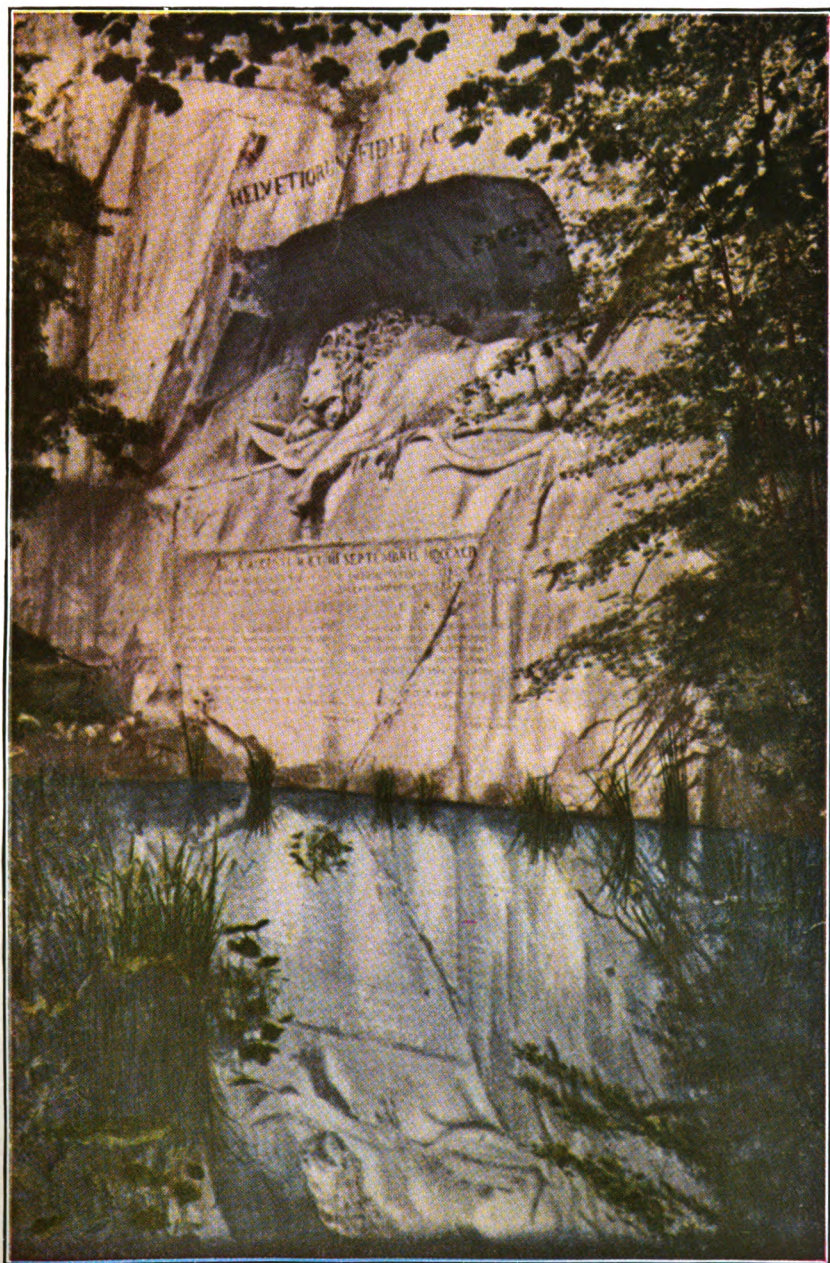
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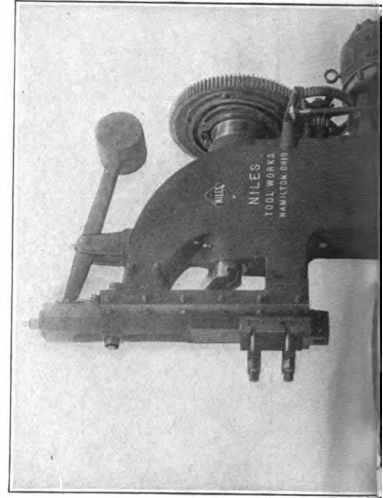
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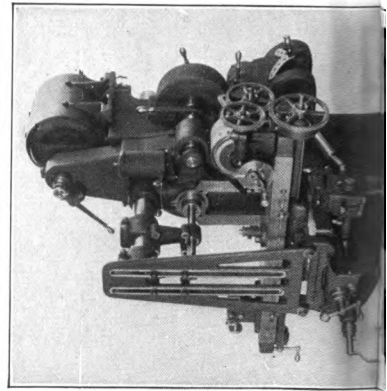
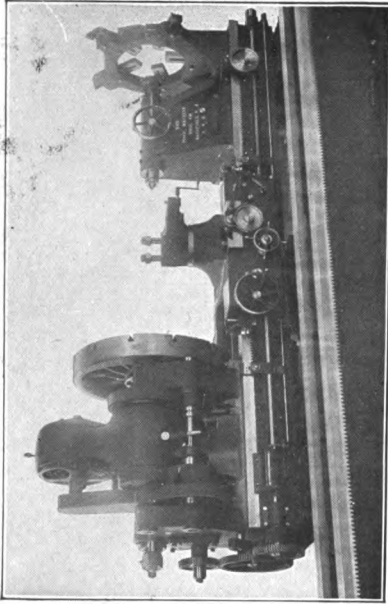
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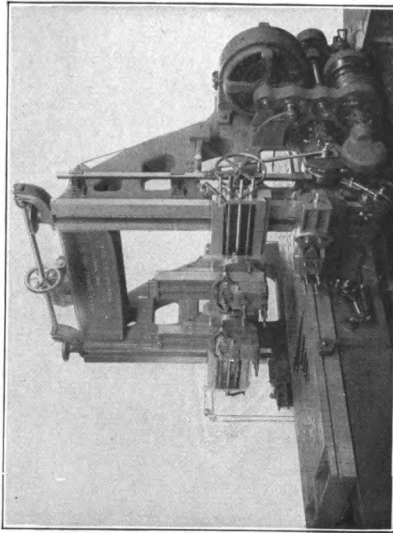
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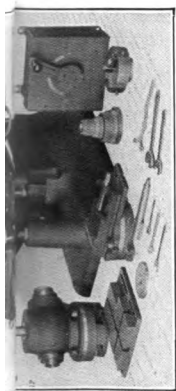
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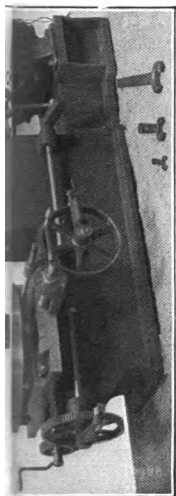
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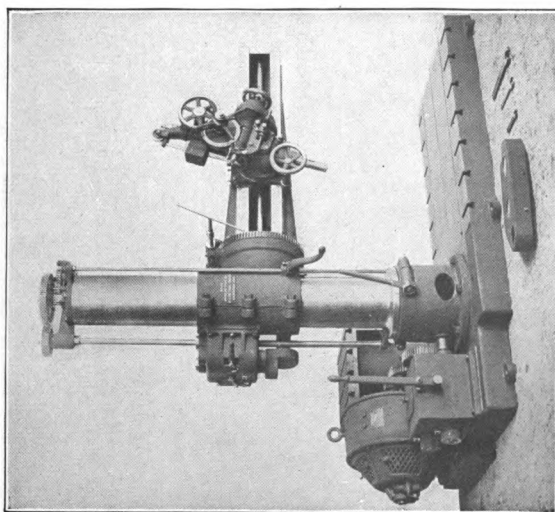




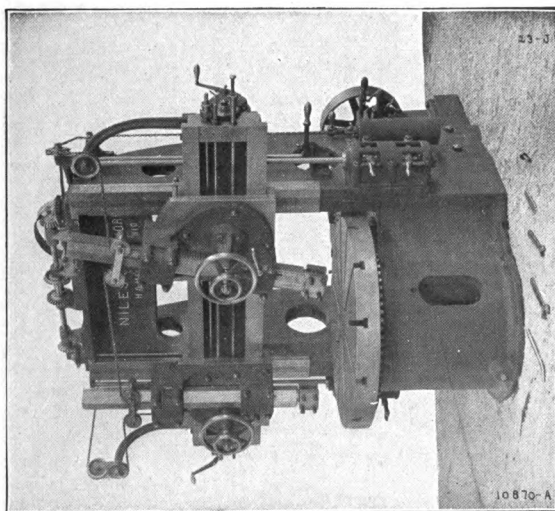
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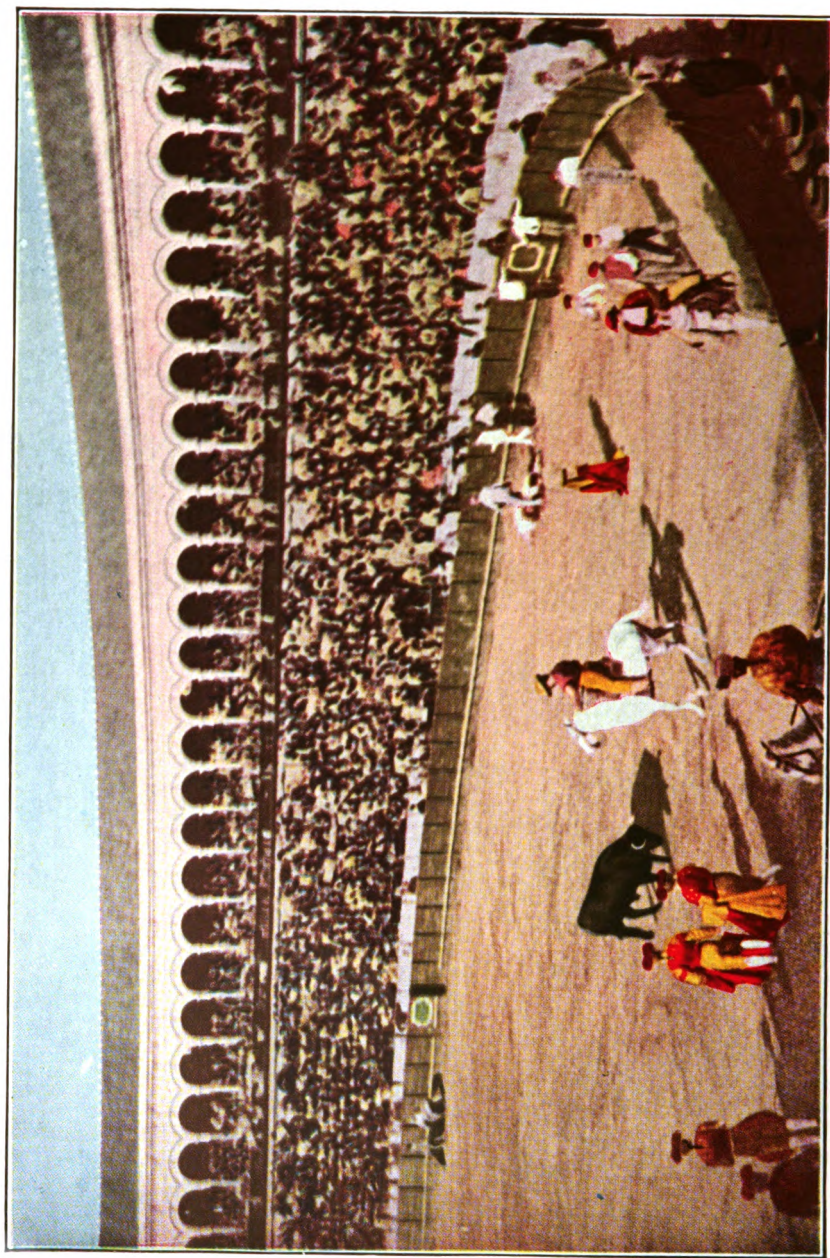


VERTICAL DRILL PRESS



VERTICAL BORING MILL

## MODERN MACHINE TOOLS



THE PLAZA DE TOROS, SEVILLE

daira. It was built by the Romans and repaired by the Moors. Seville has a university, founded 1504, two theaters, several upper schools and learned societies. The city is visited by large numbers of strangers during the Santa Semana ("holy week"), which commences about the middle of April. Pop. (1927 Est.) 215,107.

**Sewage**, the matter which passes through the drains, conduits, or sewers leading away from human habitations singly, or from houses collected into villages, towns, and cities. It is made up of excreted matter, solid and liquid, the water necessary to carry such away, and the waste water of domestic operations; but to these are added the liquid waste products of manufacturing operations, and generally much of the surface drainage water of the area in which the conveying sewers are situated.

**Sewall, Frank**, an American writer and Swedenborgian minister; born in Bath, Me., Sept. 24, 1837; was graduated at Bowdoin College in 1858; studied in the universities of Tübingen and Berlin, Germany; was pastor in Ohio and Glasgow, Scotland; president of Urbana University, O., for 16 years; after 1890 at Washington, D. C. He wrote many denominational and religious works. He died Dec. 7, 1915.

**Sewall, Harriet (Winslow)**, an American poet; born in Portland, Me., June 30, 1819. She died in Wellesley, Mass., in February, 1889.

**Sewall, Jonathan Mitchell**, an American poet; born in Salem, Mass., 1748. During the Revolutionary War he wrote a ballad, "War and Washington," which was very popular; in his epilogue (1780) to Addison's "Cato" occurs the line "No pent-up Utica contracts your powers." He died in Portsmouth, N. H., March 29, 1808.

**Sewall, Samuel**, an American jurist; born in Bishopstoke, England, March 28, 1652. He came to America very young, was graduated at Harvard in 1675, and became a member of the council; and as judge of the probate court (1692) took a prominent part in the trials during the Salem witchcraft excitement. He is chiefly remarkable in literary annals for his "Diary" and "Letters,"

which have been published by the Massachusetts Historical Society. He died in Boston, Mass., Jan. 1, 1730.

**Sewall, Stephen**, an American Hebrew scholar; born in York, Me., April 4, 1734. He became librarian and instructor at Harvard College (1762), and Professor of Hebrew (1764-1785). He left a manuscript "Chaldee and English Dictionary," now preserved in Harvard College Library. He died in Boston, Mass., July 23, 1804.

**Seward, Frederick William**, an American lawyer; born in Auburn, N. Y., July 8, 1830; was graduated at Union College in 1849; admitted to the bar in 1851; and for 10 years was one of the editors and owners of the Albany "Evening Journal." He was sent to warn Abraham Lincoln of the plot to assassinate him in Baltimore in 1861; was assistant Secretary of State in 1861-1869 and 1877-1881; accompanied Admiral Porter on the special mission to negotiate West India treaties in 1867; participated in the purchase of Alaska; was a member of the New York Legislature in 1875. He died April 25, 1915.

**Seward, George Frederick**, an American diplomatist; born in Florida, N. Y., Nov. 8, 1840; was educated at Union College; was United States consul and consul-general to Shanghai, China, in 1861-1876, and minister to China in 1876-1880. During his diplomatic career he was largely instrumental in reducing riots and piracy in China. In 1893 he became president of the Fidelity and Casualty Co., New York. He died Nov. 29, 1910.

**Seward, William Henry**, an American statesman; born in Florida, Orange co., N. Y., May 16, 1801. He studied for the bar, and began practicing in Auburn in 1823, but gradually drifted into politics, and in 1830 was elected a member of the New York Senate. Displaying marked abilities as a politician he was in 1838 and 1840 chosen governor of his native State, and in 1849 was elected to the United States Senate. In 1860 he was a candidate for the presidency, but being defeated in the convention by Abraham Lincoln he exerted himself to secure Lincoln's election. Lincoln afterward appointed Seward Sec-

retary of State, in which post he discharged his duties with great ability, showing notable tact in dealing with Great Britain in the "Trent Affair," inducing France to withdraw her troops from Mexico, and effecting the cession to the United States by Russia of Alaska (1867). He was dangerously wounded in April, 1865, when President Lincoln was assassinated, but recovered and filled the same office under Lincoln's successor, Andrew Johnson. He resigned his post on the accession of President Grant in 1869. He died in Auburn, Cayuga co., N. Y., Oct. 10, 1872. He did inestimable service to his country not only in the Civil War, but in compelling the French to leave the pretended emperor Maximilian to his fate in Mexico.

**Sewell, William Joyce**, an American statesman; born in Castlebar, Ireland, Dec. 6, 1835; came to the United States in 1851; served with distinction in the Civil War, attaining the rank of Major-General of volunteers; was a member of the New Jersey Senate in 1872-1881; United States Senator in 1881-1887, 1895-1901, and reelected for the term 1901-1907. He was a commissioner of the World's Columbian Exposition at Chicago in 1893, and for several years commanded the 2nd brigade of the National Guard of New Jersey. At the outbreak of the Spanish-American War he was nominated one of the first Major-Generals of volunteers, but his colleagues believing he could be of more service in the Senate than in the field, he declined the appointment. Died in Camden, N. J., Dec. 27, 1901.

**Sextant**, an instrument for measuring the angular distance of objects by means of reflection. The principle of its construction depends on the theorem that if a ray of light suffer double reflection the angle between the original ray and its direction after the second reflection is double the angle made by the reflecting surfaces. The instrument of which this theorem is the principle is a brass sector of a circle in outline, the sector being the sixth part of a complete circle, for which reason the instrument is called a sextant.

**Sexton**, an under officer of the church, whose duty is to take care of

the vessels, vestments, etc., belonging to the church, to attend on the officiating minister, and perform other duties pertaining to the church, to which is, in England, added the duty of digging and filling up graves in the churchyard.

**Seychelles**, a group of about 30 islands in the Indian Ocean. They were first occupied by the French, and were ceded to the British in 1814. The settlers are mostly of French extraction.

**Seymour, George Franklin**, an American clergyman; born in New York city, Jan. 5, 1829; was graduated at Columbia College in 1850 and at the General Theological Seminary in 1854; was ordained in the Protestant Episcopal Church in 1855; held various charges till 1865, when he was made Professor of Ecclesiastical History at the General Theological Seminary. He was also dean in 1875-1879. He was consecrated first Protestant Episcopal Bishop of Springfield in June, 1878. Died in 1906.

**Seymour, Horatio**, an American statesman; born in Pompey Hill, Onondago co., N. Y., May 31, 1810. In 1852 he was elected governor of New York on the Democratic ticket. At the outbreak of the Civil War he was decidedly in favor of the supremacy of the Constitution, and as governor a second time (1863-1865) showed conspicuous energy and ability in raising troops. His second incumbency of the governorship was marked by the draft riots in 1863. In 1868 he was defeated for the presidency by General Grant. He died in Utica, N. Y., Feb. 12, 1886.

**Seymour, Thomas Day**, an American educator; born in Hudson, O., April 1, 1848; was graduated at Western Reserve College in 1870; and was made Professor of Greek at Yale University in 1880. Died in 1907.

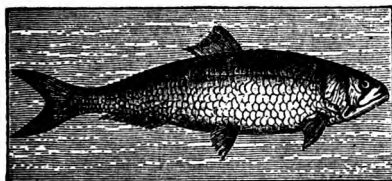
**Seymour, Thomas Hart**, an American lawyer; born in Hartford, Conn., in 1808; was a member of Congress in 1843-1845; then refused a renomination; entered the army at the beginning of the Mexican War as major of the 9th Regiment of New England Volunteers. He was later made commander of the regiment and participated in the capture of Mexico



## Shad

**City.** He was elected governor of Connecticut in 1850, 1851, 1852, and 1853; and was minister to Russia in 1853-1857. He died in Hartford, Conn., Sept. 3, 1868.

**Shad,** the popular name of three anadromous fishes of the genus *Clupea*: (1) The allice or European shad. (2) The American shad, an important



COMMON SHAD.

food fish, abundant on the Atlantic coast of America, and in some of the American rivers. It spawns in fresh water. Great quantities are salted. (3) The Twaite shad, common on the coasts of Europe, ascending rivers; abundant in the Nile. The flesh is coarser than that of the allice shad.

**Shaddock,** sometimes called pom-pelmoose, a large species of orange, attaining the diameter of seven or eight inches, with a white, thick, spongy, and bitter rind, and a red or white pulp of a sweet taste, mingled with acidity. It is a native of China and Japan, and was brought to the West Indies by a Captain Shaddock, from whom it derived its name.

**Shadow.** (1) Shade within defined limits; the figure of a body projected on the ground, etc., by the interception of light; obscurity or deprivation of light, apparent on a surface or plane, and representing the form of the body which intercepts the rays of light. (2) Darkness, gloom, shade, obscurity. (3) The dark part of a picture; the representation of comparative deficiency or deprivation of light; shade. (4) A reflected image, as in a mirror or water, hence, any image or portrait.

**Shaffer, Newton Melman,** an American physician; born in Kinder-

## Shaftesbury

hook, N. Y., Feb. 14, 1846; was graduated at the Medical College of New York University in 1867; was assistant surgeon of the New York Orthopaedic Dispensary and Hospital in 1871-1875, and surgeon-in-chief in 1876-1898. In the latter year he became Professor of Orthopaedic Surgery at the Medical College of Cornell University. He designed numerous apparatus for deformities, particularly for hip, spine, and clubfoot.

**Shaffner, Taliaferro Preston,** an American inventor; born in Smithfield, Va., in 1818. He was an associate of Prof. S. F. B. Morse in the introduction of the telegraph; built the line from Louisville, Ky., to New Orleans, and that from St. Louis to Jefferson City in 1851; was a projector of a North Atlantic cable; the inventor of several methods of blasting; and held office in various telegraph companies. He engaged in the Dano-Prussian War in 1861; was a member of various scientific societies of Europe, and published several treatises on the telegraph. He died in Troy, N. Y., Dec. 11, 1881.

**Shafter, William Rufus,** an American military officer; born in Galesburg, Mich., Oct. 16, 1835; at the outbreak of the Civil War he entered the 7th Michigan Infantry as a 1st lieutenant, Aug. 22, 1861; became brevet Brigadier-General of volunteers for gallant and meritorious services during the war; and was mustered out of the volunteer service Nov. 2, 1865. He entered the regular army and became lieutenant-colonel of the 41st Infantry, Jan. 26, 1867; and Brigadier-General May 3, 1897. On the breaking out of the Spanish-American War he was given command of the army mobilized for the invasion of Cuba; his first decisive move was the landing of 16,000 men in Cuba in about 12 hours without an accident. After the war he commanded the Departments of California and Columbia in 1899-1901, and was retired June 30, 1901. He died Nov. 12, 1906.

**Shaftesbury, Anthony Ashley Cooper, 1st Earl of,** an English statesman; born in Wimborne, St. Giles, Dorsetshire, England, July 22, 1621. After the deposition of Richard Cromwell he aided the restoration of



Charles II. with all his influence, and in 1661 was created Baron Ashley, and appointed chancellor of the exchequer and a lord of the treasury. In 1672 he was created Earl of Shaftesbury and lord high chancellor. His conduct on the bench was able and impartial, but he was deprived of office, probably through the influence of the Duke of York; and he at once became one of the most powerful leaders of the opposition. For his warmth in asserting that a prorogation of 15 months amounted to a dissolution of Parliament he was confined in the Tower from February, 1677, to February, 1678. After his liberation he took a prominent part in the attacks on Catholics during the popish-plot scare. In 1679 he became president of the council and the same year was instrumental in passing the Habeas Corpus Act. In 1681 he was indicted for high treason but acquitted. He entered into the plots of the Monmouth party and had to fly to Holland, where he died in Amsterdam, Jan. 21, 1683. He is the Achitophel of Dryden's famous satire.

**Shaftesbury, Anthony Ashley Cooper, 3d Earl of**, an English philosophical and moral writer, grandson of the preceding; born in Exeter House, London, England, Feb. 26, 1671. In 1708-1709 he published several works of a philosophical character, among others a "Letter on Enthusiasm" and an "Inquiry concerning Virtue or Merit." In 1710 his rapidly declining health led him to fix his residence at Naples. He died in Naples, Italy, Feb. 15, 1713.

**Shaftesbury, Anthony Ashley Cooper, 7th Earl of**, an English philanthropist, son of the 6th earl; born in London, England, April 28, 1801. He was educated at Oxford, and sat in the House of Commons from 1826 to 1851, when he succeeded to the peerage. He supported the administrations of Liverpool and Canning, and zealously labored to improve the condition of the laboring classes. He was president of the Bible Society, of the Pastoral Aid Society, of the Protestant Alliance, and of other religious organizations. He died in Folkestone, England, Oct. 1, 1885.

**Shagreen**, a species of leather, or rather parchment, prepared without

tanning, from the skins of horses, asses, and camels. It was formerly much used for cases for spectacles, instruments, watches, etc.

**Shah**, the title given by European writers to the sovereign of Persia; by Persians, Padishah.

**Shahan, Thomas Joseph**, an American educator; born in Manchester, N. H., Sept. 11, 1857; was educated at the American College of Rome and at the Roman Seminary; and was ordained in the Roman Catholic Church in 1882. He was Professor of Church History and Patrology at the Catholic University of America in 1891-1909, then rector; and was consecrated titular Bishop of Germanicopolis, Nov. 15, 1914.

**Shakers**, a name given to an American sect of celibates of both sexes, founded by Ann Lee, an English emigrant, about 1776, from their using a kind of dance in their religious exercises, but who call themselves the United Society of Believers in Christ's Second Appearing. Their chief settlement is at Mount Lebanon, N. Y. Their foundress was called the Elect Lady, and Mother of all the Elect, and claimed to be the woman mentioned in Rev. xii. The Shakers profess to have passed through death and the resurrection into a state of grace—the resurrection order, in which the love which leads to marriage is not allowed, and are known as brothers and sisters. They abstain from wine and pork, live on the land and shun towns. They cultivate the virtues of sobriety, prudence, and meekness, take no oaths, deprecate law, avoid contention, and repudiate war. Their Church is based on these grand ideas: The kingdom of heaven has come, Christ has actually appeared on earth; the personal rule of God has been restored; the old law is abolished; the command to multiply has ceased; Adam's sin has been atoned; the intercourse of heaven and earth has been restored; the curse is taken away from labor; the earth, and all that is on it, will be redeemed; angels and spirits have become, as of old, the familiars and ministers of men.

**Shakespeare, William**, an English dramatist and poet; born in Stratford-on-Avon, Warwickshire, En-

## Shale

gland, in April, 1564. His birthplace, as pointed out by traditions, is the house in Henley street, Stratford, which belonged to his father. In his 19th year he married Anne Hathaway, daughter of a yeoman at the neighboring hamlet of Shottery, and eight years older than himself.

He went to London about 1586, and lived there many years, leaving his wife and children at Stratford; he gained an honorable position as actor, playwright, and shareholder in the theater of Blackfriars, and afterward in that of the Globe; enjoyed the favor and patronage of Queen Elizabeth, James I., and the Earl of Southampton, the warm friendship of Ben Jonson, and the highest respect and admiration of his associates, not only for his preëminence as a poet, but for his honesty, geniality, and worth as a man.

Of his end we have no other account than the short statement in the diary of the Rev. John Ward, vicar of Stratford that "Shakespeare, Drayton, and Ben Jonson had a merry meeting, and it seems drank too hard, for Shakespeare died of a fever then contracted." The date of his death is April 23, 1616.

The first collected edition of Shakespeare's plays was the folio of 1623, his poems of "Venus and Adonis," and "The Rape of Lucrece," were published in 1593 and 1594, and were the only works which appeared with his name in his lifetime. Of the 36 plays (exclusive of "Pericles"), the dates of publication of only a few are known. "The Two Gentlemen of Verona," and "Love's Labor's Lost," were among the earliest; and "Tempest," "Troilus and Cressida," "Henry VIII.," "Coriolanus," "Julius Cæsar," and "Antony and Cleopatra" among the latest. The "Midsummer Night's Dream," "Merchant of Venice," "Romeo and Juliet," "Richard II.," "Richard III.," "Henry IV.," and "King John" were all produced before 1598. A copy of "Hamlet" is extant, bearing the date 1602. "Twelfth Night" was produced in 1601; "King Lear" was printed in 1607; the "Tempest" was written in 1611. The second folio edition of the collected plays appeared in 1632, and two others subsequently. It is said

## Shanks

that by 1830 not less than 82 editions had been published, without including separate plays, and poems, and commentaries. Since then the number has been enormously increased.

**Shale**, in geology an indurated clay, chiefly composed of silica and alumina; is of a gray or grayish-black color; and is used for making slate pencils.

**Shaler, Nathaniel Southgate**, an American geologist; born near Newport, Ky., Feb. 20, 1841. He served two years as an artillery officer in the Union army during the Civil War; was Professor of Geology; dean of Lawrence Scientific School; and after 1884 geologist in charge of Atlantic Division United States Geological Survey. He died Apr. 10, 1906.

**Shamokin**, a borough in Northumberland county, Pa.; on the Lehigh Valley and other railroads; 98 miles N. E. of Reading; is chiefly engaged in mining and shipping anthracite coal, and contains railroad repair shops, and wagon, hosiery, underwear, shirt, silk goods, and door knob plants. Pop.(1930) 20,274.

**Shamrock**, the trefoil plant adopted as the Irish national emblem.

**Shamyl.** See SCHAMYL.

**Shanghai**, a city and seaport of China, in the province of Kiangsu; near the junction of the Hwang-pu and the Wu-sung rivers. The Chinese city proper is inclosed within walls 24 feet high, the streets being narrow and dirty, and the buildings low, crowded, and for the most part unimportant. In 1843 Shanghai was opened as one of the five treaty ports, and an important foreign settlement is now established (with a separate government) outside the city walls. Shanghai has water communication with about a third of China, and its trade has become extensive. Pop. (1924) Est. 1,100,000.

**Shanklin, William Arnold**, an American educator; born in Carrollton, Mo., April 18, 1862; ordained in the Methodist ministry in 1889; continued in pastoral work till 1905; was president of Upper Iowa University in 1905-1909; then became president of Wesleyan University (Conn.).

**Shanks, William Franklin Gore**, an American journalist; born

in Shelbyville, Ky., April 20, 1837. He was war correspondent for the New York "Herald" (1861-1865); subsequently editorially connected with the same paper, with "Harper's Weekly," the New York "Times," "Tribune," and "Daily Star"; in 1880 organized the National Press Intelligence Company; in 1891 established "The Daily and Weekly Bond Buyer," which he owned and edited. During the Civil War he served as volunteer aide-de-camp on the staffs of Generals Rousseau and Thomas, and was wounded at the battle of Chickamauga. He was imprisoned for refusing to divulge the name of a writer of an article in the New York "Tribune." He died Feb. 22, 1905.

**Shark**, an English popular name for any individual of the group Sela-

choidei. Sharks are scaleless, and the skin usually rough. They are numerous in tropical seas, becoming scarcer as they recede from the warmer regions, a few only reaching the Arctic circle. They are rapid swimmers, with great power of endurance; the larger sharks are exclusively carnivorous, and some of them extremely dangerous to man. They scent their food from a distance, and are readily attracted by the smell of blood or decomposing bodies. The flesh of sharks is coarse, but it is sometimes eaten — the Chinese

use sharks' fins for making thick gelatinous soups, and the liver yields



EGG OF SHARK.  
(SCYLLIUM CHILENSE.)

an oil, for the sake of which a shark fishery is prosecuted off of Ceylon.

**Sharp, William**, British poet, essayist and author; b. near Paisley, 1856. He was a prolific writer and editor of valuable works, and after his death, Dec. 14, 1905, in Sicily, it became known that he wrote the presumably feminine novels of FIONA MACLEOD.

**Sharp, William Graves**, an American diplomat; born at Mt. Gilead, O., March 14, 1859; was graduated in law at the University of Michigan and admitted to the Ohio bar in 1881; elected prosecuting attorney of Lorain county in 1884; then engaged for 20 years in the manufacture of pig iron and chemicals; elected to Congress for the terms of 1909-15; resigned July 23, 1914, on being appointed Ambassador to France, succeeding Myron T. Herrick, who had greatly endeared himself to the French people by his sympathetic labor in the early part of the World War. From the day of his arrival in France Ambassador Sharp had to assume unusually heavy and varied responsibilities, particularly after the United States was forced into the war.

**Sharpless, James**, an American artist; born in England about 1751; came to the United States in 1794 and began the making of pastel portraits. Among his sitters were Washington, Jefferson, Monroe, Burr, Hamilton and other prominent Americans. These portraits, about 40 in all, were placed in the National Museum in Independence Hall, Philadelphia, in 1876. He died in New York city, Feb. 26, 1811.

**Sharswood, George**, an American jurist; born in Philadelphia, Pa., July 7, 1810; was graduated at the University of Pennsylvania in 1828 and admitted to the bar in 1831. In 1867 of the latter year he became a justice of the Pennsylvania Supreme Court; and was chief justice in 1878-1882. He died in Philadelphia, Pa., May 28, 1883.

**Shasta, Mount**, a peak of volcanic origin in Siskiyou co., Cal., at the N. end of the Sierra Nevada, 14,350 feet above sea-level. On its summit are three glaciers, one of which, the Whitney glacier, is 3 miles long. On its slopes are some gigantic trees over 300

feet high. The mountain is almost a perfect cone, and is a dormant volcano.

**Shattuck, Harriette Robinson**, an American parliamentarian; born in Lowell, Mass., Dec. 4, 1850; received a public school education. She was for several years assistant clerk and in 1872 clerk of the Massachusetts House of Representatives, and was the only woman that ever held that post. Later she became a teacher of parliamentary law. Her publications include "Shattuck's Advanced Rules of Parliamentary Law" (1895).

**Shaw, Albert**, an American editor; born in Shandon, Butler co., O., July 23, 1857; was educated at Iowa College and Johns Hopkins University. After 1891 he was the editor of the American "Review of Reviews." "Municipal Government in Great Britain" and "Municipal Government in Continental Europe" are his principal works.

**Shaw, George Bernard**, British critic, essayist and dramatist; b. Dublin, 1856. He settled in London in 1876 and soon achieved fame as a brilliant man of letters, by problem novels, plays, and Socialistic lectures.

**Shaw, Henry Wheeler** ("JOSH BILLINGS"), humorist; b. Lanesborough, Mass., Apr. 21, 1818. His "Essa on the Mul," in 1860, brought him wide fame, and 127,000 copies of his travesty on the "Old Farmer's Almanac" were sold in its second year. He was a prolific writer and lecturer until his death in Monterey, Cal., Oct. 14, 1885.

**Shaw, John**, an American naval officer; born in Mount Mellick, Ireland, in 1773; removed to Philadelphia, Pa., in 1790. When war with France became probable, he joined the United States navy as a lieutenant; and was placed in command of the schooner "Enterprise" in December, 1799. During an eight months' cruise with this vessel he engaged in five severe actions, recaptured 11 American prizes and took 5 French privateers. He was promoted captain in August, 1807, and commanded the fleet which was blockaded by the British in the Thames river in 1814. He died in Philadelphia, Pa., Sept. 17, 1823.

**Shaw, John Balcom**, an American clergyman; born in Bellport, N. Y., May 12, 1860; was graduated at Lafayette College in 1885, and at the Union Theological Seminary in 1888; was ordained in the Presbyterian Church and became president of Elmira (N. Y.) College for Women in 1915.

**Shaw, Lemuel**, an American jurist; born in Barnstable, Mass., Jan. 9, 1781; was graduated at Harvard University in 1800 and was admitted to the bar in 1804; became chief-justice of the Massachusetts Supreme Court in 1830-1860. He died in Boston, Mass., March 30, 1861.

**Shaw, Leslie Mortier**, an American statesman; born in Morristown, Vt., Nov. 2, 1848; was graduated at Cornell College, Mt. Vernon, Ia., in 1874, and at the Iowa College of Law in 1876, and in the latter year began the practice of law in Denison, Ia. Some years later he became interested in banking and was made president of the Bank of Denison and also of the Bank of Manila, Ia. He first became prominent in politics in 1896, when he came out strongly for William McKinley, and soon acquired a high reputation as a public speaker. He was elected governor of Iowa for the terms of 1898-1900 and 1900-1902; resigned the office of governor in 1902 to become Secretary of the United States Treasury Department; president Carnegie Trust Co., New York, in 1907-8, then of the First Mortgage Guarantee and Trust Co., Philadelphia.

**Shaw University**, a coeducational institution in Raleigh, N. C., for colored students; founded in 1865 under the auspices of the Baptist Church.

**Shawl**, an article of dress worn by both sexes in the East, but in the West chiefly by females. Some of the Eastern shawls are beautiful and costly fabrics. Norwich and Paisley were long famed for their shawls made in imitation of those from India. The use of shawls in America belongs almost entirely to the present century.

**Shawnee Indians**, a tribe of American Indians of the Algonquin family, formerly settled mainly in New York, Pennsylvania, and Ohio, but driven W. by the Iroquois. They helped the French against the English, gave trouble to the newly-founded



United States, and in 1812 some bands joined the English. They afterward removed to Missouri, Kansas, and Indian Territory.

**Shays, Daniel**, an American insurgent; born in Hopkinton, Mass., in 1747; served as ensign at the battle of Bunker Hill, and attained the rank of captain in the Continental army. He took a leading part in the popular movement in Western Massachusetts for the redress of alleged grievances, appearing before Springfield, Mass., at the head of 1,000 men to prevent the session of the Supreme Court at that place, and commanding the rebel party at Pelham and at the engagement with the militia at Petersham. After the rebellion was put down, however, he was pardoned by the government and later, in his old age, was allowed a pension for his services during the Revolutionary War. He died in Sparta, N. Y., Sept. 29, 1825.

**Shea, John Dawson Gilmary**, an American historian; born in New York city, July 22, 1824; was educated at Columbia College; studied law and was admitted to the bar, but devoted himself chiefly to literature. He edited the "Historical Magazine" in 1859-1865; was one of the founders and first president of the United States Catholic Historical Society; a member of numerous historical societies in Canada and the United States; and corresponding member of the Royal Academy of History, Madrid, Spain. Died in Elizabeth, N. J., Feb. 22, 1892.

**Sheartails**, a genus of hummingbirds of which the slender sheartail and Cora's sheartail are two familiar species. These birds occur, the former in Central America generally; the latter in Peru and in the Andes valleys. They derive their name from the elongation of the two central tail feathers of the males.

**Shearwater**, the name of several marine birds of the genus *Puffinus*. The great shearwater, which is 18 inches long, is found on the S. W. coasts of England and Wales. They fly rapidly, skimming over the sea, from which they pick up small fishes, mollusks, etc. The name is sometimes applied to the scissor-bill or skimmer.

**Sheatfish**, a name applied to any fish of the family Siluridae, but specifi-

cally to the sly silurus, with the exception of the sturgeon, the largest European fresh-water fish, and the only European member of the family. It is allied to the catfish. It occurs in the Rhine, and is common in Germany, Poland, Styria, the Danube, and the rivers of Southern Russia. It attains a weight of 300-400 lbs.

**Sheboygan**, city and capital of Sheboygan county, Wis.; on Lake Michigan, at the mouth of the Sheboygan river, and the Chicago & Northwestern railroad; 52 miles N. of Milwaukee; has a large lake commerce in lumber, fish, and farm products; is especially noted for its manufactures of chairs; also produces stamped steel and cast-iron work, furniture, brick and tile, and leather; and contains a Federal Building, Day School for the Deaf, Asylum for the Chronic Insane, and Home for the Friendless. Pop. (1930) 39,251.

**Shedd Aquarium**, an aquarium in Grant Park, Chicago, Illinois, officially opened June 1, 1930. Funds for building, stocking and maintenance were supplied by the late John G. Shedd, a wealthy merchant. The building is in the form of an octagon with a diameter of 300 feet; it is surmounted by a dome 100 feet high from the foundation line. The exhibition tanks number 132, and specimens have been obtained from all parts of the world. A fish hatchery and reserve supply of stock are also provided. Two main reservoirs contain 1,000,000 gallons of water each. For many specimens, water is brought from their natural habitat.

**Shedd, Mrs. Julia Ann (Clark)**, an American art writer; born in Newport, Me., Aug. 8, 1834; chief work: "Famous Painters and Paintings." She died in 1897.

**Sheep**, the common name of the genus *Ovis*, belonging to the hollow-horned ruminant family. Naturalists are by no means agreed as to what was the original breed of this invaluable animal, which is in modern farming almost equally important for furnishing the farm with a dressing of manure, and the community at large with mutton, clothing and other necessities of life. The leading fact in the geographical history of this genus is that



it occurs both in the New and the Old World, whereas the goat tribe are naturally unknown in America. It is usually regarded by naturalists as being not only specifically, but generically, distinguished from the goat tribe; but some authorities, on the other hand, are inclined to believe that the generic separation is founded chiefly on characters which have arisen from the influential power of man. In a state of nature, the sheep is scarcely less active or energetic than the goat; its dimensions are greater, its muscular strength at least equal both in force and duration. It is also an Alpine animal, and among its native fastnesses bounds from rock to rock with almost inconceivable swiftness and agility.

The three unsubdued races of sheep are as follows: The Musmon, the bearded sheep of Africa; the Argali, or wild sheep of Asia; and the Rocky Mountain sheep of the United States. The latter is larger than the largest varieties of domestic breeds. The horns of the male are of great dimensions, arising a short way above the eyes, and occupying almost the entire space between the ears, but without touching each other at their bases. The hair in this species resembles that of a deer, and is short, dry, and flexible in its autumn growth; but becomes coarse, dry and brittle as the winter advances.

The most important breed of sheep as regards the texture of the wool is the Merino, in modern times brought to the greatest perfection in Spain, though their originals probably formed the flocks of the patriarchs thousands of years ago, and have been the stock of all the fine-wooled sheep. They readily form cross breeds, called demi-merinos, which have been brought to great perfection in France, whence, as well as from Spain, they have been imported into the United States. On Jan. 1, 1927, the total number of sheep in the United States was estimated at 41,909,000, valued at \$406,531,000. The largest number being in Texas, 4,242,000; California 3,500,000; Wyoming 3,100,000; Montana 2,736,000; Utah 2,650,000, and New Mexico 2,490,000.

**Sheep's-Head**, the name of a fish caught on the shores of Connecticut and Long Island. It is allied to the

gilt-head and the bream, and is considered a delicious food. It receives its name from the resemblance of its head to that of a sheep.

**Sheep Tick**, a well-known dipterous insect, belonging to the family horse flies. The pupæ produced from the eggs are shining oval bodies which become attached to the wool of the sheep. From these issue the tick, which is horny, bristly, of a rusty ochre color, and wingless. It fixes its head in the skin of the sheep and extracts the blood, leaving a large round tumor. Called also sheep louse.

**Sheerness**, a seaport, dockyard, and garrison town of England, county of Kent, in the Isle of Sheppey, on the river Medway, at its junction with the Thames, 47 miles east of London by rail. The harbor is safe and commodious, and the fortifications, which are modern, are of immense strength. The admiralty dockyard employs a large number of men, and is principally utilized for repairs. Sheerness has large military and naval barrack accommodation. Pop. about 25,000.

**Sheers**, or **Shears**, in nautical language, an apparatus consisting of two masts or legs, secured together at the top, and provided with ropes or chains and pulleys; used principally for masting or dismantling ships, hoisting in and taking out boilers, etc. The legs are separated at their feet to form an extended base and are lashed together at their upper ends, to which the guy ropes and tackles are attached.

**Sheffield**, a municipal and parliamentary borough of England, county of York (West Riding); "on hilly ground at the junction of the Sheaf and Don, about 160 miles N. of London. In the central parts great improvements have recently been made in the crowded streets by the corporation, and the suburban districts are well built and picturesquely situated. The trade of Sheffield is chiefly connected with cutlery, for which it has long been famous, and the manufacture of all forms of steel, iron, and brass work. The steel manufacture includes armor plating, rails, engine castings, rifles, etc. There are also manufactures of engines, machinery, plated goods, Britannia-metal goods, optical

## Sheik

instruments, stoves and grates, etc. Pop (1927) 524,900.

**Sheik, or Sheikh** (Arabian, an elder, a chief), the head of a Bedouin family of importance with its retainers, or of a clan or tribe. He is sovereign within the portion of the desert occupied or traversed by his people, but, if too despotic, can be kept within bounds by the knowledge that a portion of his clan may transfer its allegiance to some other sheik. When war exists, the sheiks of a region confederate together and choose one of their number as a sheik or chief.

**Shekel**, in Hebrew weights, the fundamental weight in the Hebrew scale. It is believed to have weighed 8.78 drachms avoirdupois, 10 pennyweights troy. Three hundred shekels constituted a talent. In Hebrew money, a coin believed to have been worth 54.74 cents, but money was then, perhaps, 10 times as valuable as now. Shekels of the Maccabee period still exist.

**Shelby, Isaac**, an American military officer; born in North Mountain, Md., Dec. 11, 1750. In 1774 he was made a lieutenant in a company commanded by his father. He was present at the action of Point Pleasant, where his skill won the day, and he commanded the fort there till July, 1775. Later Shelby was appointed commissary-general of the Virginia troops with the rank of captain; was made colonel in 1779; and in the following year with John Sevier planned the expedition which brought about the action of King's Mountain and changed the whole aspect of the Revolutionary War. In 1792, when Kentucky became a State he was chosen its first governor by an overwhelming majority. He refused to be a candidate for a second term, but settled down to farm life which he declined to leave for public office. When the War of 1812 broke out and Michigan fell into the hands of the enemy, though 63 years old, he recruited and led 4,000 men to reinforce Gen. William H. Harrison. In recognition of this service Congress voted him a gold medal and he received the thanks of both that body and the Legislature of Kentucky. He died near Stanford, Ky., July 18, 1826.

## Shell

**Sheldon, Charles Monroe**, an American clergyman; born in Wells-ville, N. Y., Feb. 26, 1857; was graduated at Brown University in 1883 and at Andover Theological Seminary in 1886; was ordained in the Congregational Church the same year; pastor of the Central Congregational Church, Topeka, Kan., in 1899-1912. He edited the Topeka "Capital" for one week in 1900, as a distinctly Christian newspaper, and was the author of numerous books, including "His Brother's Keeper," "In His Steps," "Malcolm Kirk," "Edward Blake," "Born to Save," etc.

**Sheldon, Grace Carew**, an American journalist; born in Buffalo, N. Y.; was graduated at Wells College in 1875. She founded and became the head of the Woman's Exchange of Buffalo in May, 1886. This exchange receives work only from self-supporting women in the United States. In September, 1895, she went to the International Press Congress held in Bordeaux as the first American woman delegate. Later she traveled in Northern Venezuela, Orinoco, Curacao, Haiti, and the West Indies, for the purpose of contributing special articles to New York and Buffalo papers.

**Sheldon, Lionel Allen**, an American military officer; born in Otsego co., N. Y., Aug. 30, 1829. In 1860 he was commissioned a Brigadier-General of militia, and in that capacity raised many recruits for the Union army. He was made colonel of the 42d Ohio Infantry in 1862; won distinction in the battles of Chickasaw Bayou and Arkansas Post; was wounded in the action at Fort Gibson; and took part in the capture of Vicksburg. He was brevetted Brigadier-General of volunteers in 1865. After the war he removed to New Orleans, where he practised law; was a Republican member of Congress in 1869-1875; and governor of New Mexico in 1881-1885.

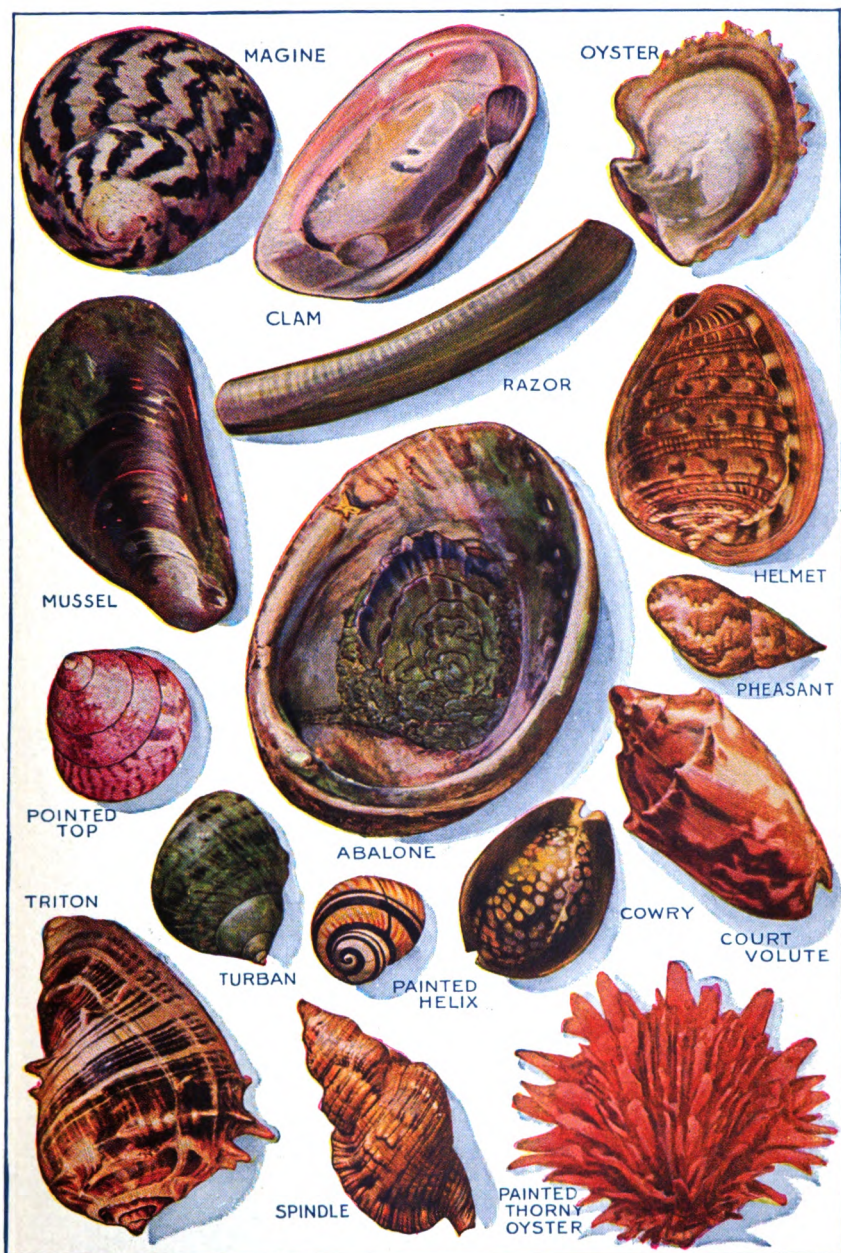
**Shell**, in zoölogy, the hard calcareous substance which either protects the testaceous mollusca externally, or supports certain species of them internally. Shells are divided into Multivalves, Bivalves, and Univalves. The first order, Multivalve, is made up of shells consisting of more

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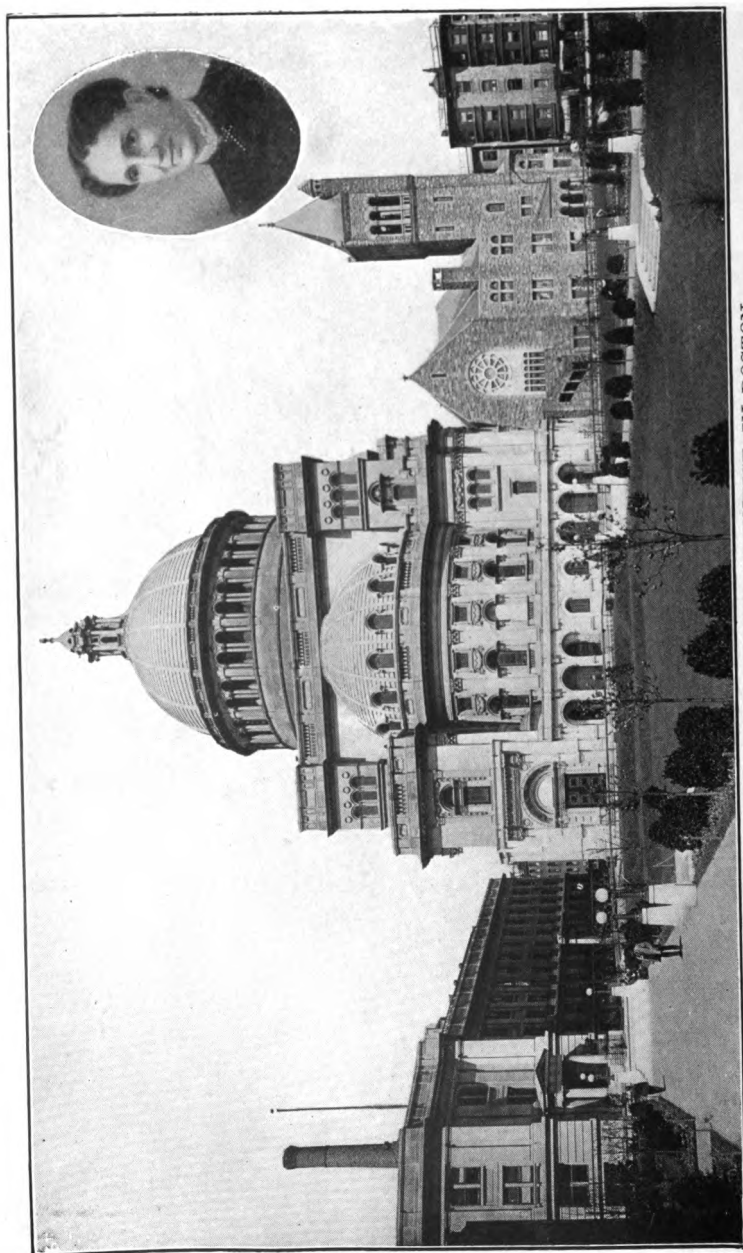
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# BRILLIANT SEA SHELLS



THE FIRST CHURCH OF CHRIST, SCIENTIST, IN BOSTON

The Mother Church and its extension.  
Publication Building at left.

Mrs. Mary Baker G. Eddy.  
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shelly parts or pieces than two. Every part of a shell which is connected with a corresponding part by a cartilage, ligament, hinge, or tooth, is called a valve of such shell. The second order, Bivalve, is made up of shells having two parts or valves, generally connected by cartilage or hinge; as in the cockle and mussel. The third order, Univalve, is made up of shells complete in one piece—as in the periwinkle and the whelk—and they are subdivided into shells with a regular spire, and those without a spire. The shells composing this order are far more numerous than those of the two preceding, both in genera and species. Shells increase in size by the deposition of new layers internally on those already formed. Each new layer extends more or less beyond the margin of the layer to which it is applied, so that as the animal becomes older its shell becomes larger and thicker. The outer surface is generally covered by a thin layer of membranous or horny matter, named the epidermis, and the inner surface is often covered with a layer of a pearly nature. It is universally found that the marine shells of warm climates exceed all others in beauty of coloring and in taking a fine polish.

In military usage the name shell is given to a hollow vessel of metal containing gunpowder, or other explosive compound, so arranged that it shall explode at a certain point and spread destruction around by the forcible dispersion of its fragments. Shells are usually made of cast-iron or steel.

**Shellac.** See LAC-INSECT.

**Shelley, Percy Bysshe**, an English poet, son of Sir Timothy Shelley; born in Horsham, England, Aug. 4, 1792; was educated at Sion House School, Brentford, at Eton, and at University College, Oxford. At Oxford he published anonymously, a scholastic thesis entitled "A Defense of Atheism." The authorship being known he was challenged, and refusing either to acknowledge or deny it, was at once expelled. After leaving the university, he completed his poem of "Queen Mab," begun some time previously, and privately printed in 1813. His first great poem, "Alastor, or the Spirit of Solitude," (1816) was followed in 1817 by the "Revolt of

Islam," a poem in the Spenserian stanza. In September, 1811, six months after his expulsion, he eloped to Edinburgh with Harriet Westbrook, the daughter of a retired innkeeper. She was 16 years of age, his own age being 19. The marriage turned out unhappily, and after nearly three years of a wandering unsettled life Mrs. Shelley returned with two children to her father's house. In November, 1816, she committed suicide by drowning. Shelley was deeply affected by this event, but soon after married Mary Godwin, with whom he had visited the Continent in 1814, and by whom he already had a child. By a suit in Chancery decided in 1817, Mr. Westbrook obtained the guardianship of the children, on the plea that his atheistical opinions and irregular views on marriage made the father unfit to be intrusted with them. Partly from his lungs being affected, and partly from anxiety lest he should be deprived of the children of his second marriage, Shelley left England in March, 1818, and the remainder of his life was passed in Italy. On July 8, 1821, he was sailing with a Mr. Williams in the Bay of Spezia when both were drowned by, as was believed, the upsetting of the boat, but there is some suspicion that the boat was purposely run down for plunder.

**Shenandoah**, a borough in Schuylkill county, Pa.; on the Philadelphia & Reading and other railroads; 12 miles N. of Pottsville; is the mining and trade center of the great Schuylkill coal region; is chiefly engaged in mining and shipping coal. Pop. (1930) 21,782.

**Shenandoah**, a river of the United States, which flows N. E. through the valley of Virginia, and immediately below Harper's Ferry joins the Potomac, of which it is the principal tributary. Its length is 170 miles, the greater part of which is navigable for boats. The valley of the Shenandoah was the scene of numerous military operations in the American Civil War, and was devastated by General Sheridan in 1864.

**Shenandoah, The**, a ship in the Confederate service during the American Civil War. It was built at Glasgow in 1863 for the China trade, and in 1864 was purchased by the Con-



federates. Her war record included the capture of 38 Federal vessels. Her career was continued for several months after Lee's surrender, and included the last hostile acts of the Civil War. When Commander Waddell learned of the close of the war, he sailed to Liverpool and surrendered to the British government. The commander and crew were liberated and the ship was handed over to the United States consul. The "Shenandoah" was the only vessel that carried the Confederate flag around the world.

**Sheol**, in Jewish belief, the place of the dead, from a Hebrew word meaning a cave. In the Authorized Version of the Bible it is translated by the words, hell, grave, or pit. In the Revised Version the word "sheol" is, generally left untranslated in the text, while "grave" is put in the margin.

**Shepard, Charles Upham**, an American mineralogist; born in Little Compton, R. I., June 29, 1804; was graduated at Amherst College in 1824. In 1835 he discovered a new species of microlite; in 1838 that of warwickite; and in 1839 that of danburite. During his residence in Charleston, S. C., he discovered valuable deposits of phosphate of lime near that city, which proved very useful in the manufacture of fertilizers and added greatly to the chemical industries of the State. He died in Charleston, S. C., May 1, 1886.

**Shepard, Thomas**, an Anglo-American colonial clergyman; born in England in 1605; died in 1669. He graduated from Emmanuel College, Cambridge; became a non-conformist, and emigrated to Boston in 1635. He was one of the founders of Harvard College, and author of several works.

**Shepherd Kings**, the chiefs of a nomadic tribe of Arabs, who established themselves in Lower Egypt some 2,000 years B. C. Manetho says they reigned 511 years, Eratosthenes says 470 years, Africanus, 284 years, Eusebius, 103 years. Some say they extended over five dynasties, some over three, some limit their sway to one; some give the name of only one monarch, some of four, and others of six. Bunsen places them 1639 B. C.; Lepsius, 1842 B. C.; others, 1900 or 2000.

**Shepherd's Purse**, an annual weed of the order Cruciferae.

**Sherbrooke**, city and capital of Sherbrooke county, Quebec, Canada; at junction of the St. Francis and Magog rivers and on the Grand Trunk and other railroads; 101 miles E. of Montreal; is in a grain, farm produce, dairying, live-stock, and gold and copper section; has fine water-power and important manufactures; and contains St. Charles College, Y. M. C. A. building, Art and Public Library building, Victoria and Racine parks, several fine squares and benevolent institutions. Pop. (1930 Est.) 29,000.

**Sherbrooke, Robert Lowe, Viscount**, an English statesman; born in Bingham, England, Dec. 4, 1811. He obtained in Mr. Gladstone's ministry the office of Chancellor of the Exchequer; exchanging it in 1873 for that of Home Secretary. In 1880 he went to the Upper House as Viscount Sherbrooke. He died in London, England, July 27, 1892.

**Sheridan, Mount**, a mountain of Wyoming, situated in the Yellowstone National Park; is a summit of the Red Range of the Rocky Mountains. It is 10,420 feet high, with a range of vision over an immense expanse and several hundred distinct mountain summits, at distances varying from 30 to 200 miles. A large part of it is formed of porphyry of a purplish-pink color; and was named for Gen. Philip H. Sheridan.

**Sheridan, Philip Henry**, an American military officer; born in Albany, N. Y., March 6, 1831; was graduated at the Military Academy at West Point in 1853. On the breaking out of the Civil War he was appointed quartermaster of the army in Southwestern Missouri; in 1862 became chief quartermaster of the Western Department, and colonel of the 2d Michigan Volunteer Cavalry. He cut the railroads S. of Corinth; defeated two separate forces of cavalry at Baldwin and Guntown in June, 1862, and fought at Booneville; was promoted Brigadier-General of volunteers; took command of the 11th Division of the Army of Ohio; distinguished himself at Perryville and at Stone river or Murfreesboro, Dec. 31 and Jan. 3, 1863, for which he was

promoted Major-General of volunteers. He was engaged at Chickamauga, Sept. 19 and 20, 1863, and in the operations around Chattanooga; was appointed, in April, 1864, to the command of the cavalry corps of the Army of the Potomac; took part in the battles of the Wilderness, Meadow Bridge, and Cold Harbor, in May; in June, led a cavalry expedition into the heart of the Confederate country and was given the command of the Army of the Shenandoah; defeated General Early in several engagements in the Shenandoah valley. On Oct. 19 occurred his famous ride from Winchester. Under orders from Grant he devastated the valley. He was appointed to the chief command of the cavalry, which branch of the Federal forces, under his able and energetic direction, acquired an efficiency and gained a reputation such as it had never borne before. Sheridan was promoted Brigadier-General, U. S. A., Sept. 20, 1864, and Major-General, Nov. 8 of the same year. On Feb. 9, 1865, the thanks of Congress were tendered to him for "the gallantry, military skill, and courage displayed in the brilliant series of victories achieved by his army in the valley of the Shenandoah, especially at Cedar Creek." After the capture of Staunton, he pressed on to Columbia, laying waste the country in every direction; gained the battle of Five Forks, April 1, 1865; assisted in compelling the Confederate forces to evacuate Petersburg and Richmond, and near Appomattox Court-house encountered General Lee, who surrendered April 9. On March 4, 1869, he was promoted Lieutenant-General, and Nov. 1, 1883, succeeded Sherman in command of the army. Congress revived the grade of general, to which he was appointed, June 1, 1888. He died in Nonquitt, Mass., Aug. 5, 1888.

**Sheridan, Richard Brinsley Butler**, a British dramatist and statesman; born in Dublin in 1751. He was educated at Harrow, and in 1775 commenced a career of dramatic composition with "The Rivals." His reputation, and social gifts, brought him into intimacy with the Whig leaders, and in 1780 was returned to Parliament for Stafford. In 1782 he became under-secretary of state; in 1783

secretary of the treasury; in 1806 treasurer of the navy and privy-councillor. He won fame as an orator. "The Rivals;" and "The School for Scandal;" are his chief dramatic works. Died in London, July 6, 1816, and was buried in Westminster Abbey.

**Sherman, James Schoolcraft**, an American statesman; born in Utica, N. Y., Oct. 24, 1855; received a collegiate education; admitted to the bar in 1880; Republican member of Congress in 1887-1891 and 1893-1909; elected Vice-President of the United States on the ticket with William H. Taft in 1908; renominated with President Taft at Chicago, June 22, 1912; died at Utica, N. Y., Oct. 30, 1912.

**Sherman, John**, an American statesman; born in Lancaster, O., May 10, 1823; brother of Gen. William T. Sherman; was admitted to the bar in 1844; served as a delegate to the National Whig conventions of 1848 and 1852; and was a member of Congress in 1855-1861. He took a prominent part in the proceedings of the House; was on the Committee of Inquiry sent to Kansas; and joined the movement for the formation of the Republican party. In 1861-1877 he was in the Senate and there was prominently identified with the support of all measures for the prosecution of the Civil War; defended the protective tariff, the restoration of specie payments, and the refunding of the National debt. He was Secretary of the Treasury in 1877-1881, and superintended the resumption of specie payments in 1879, after a suspension of 17 years. He was reelected to the Senate in 1881 and continued to hold that office till 1897, when he was appointed Secretary of State by President McKinley. He resigned that office, however, in 1898, on account of failing health. He was a candidate for the presidential nomination in 1884 and 1888. Died in Washington, D. C., Oct. 22, 1900.

**Sherman, Roger**, an American statesman; born in Newton, Mass., April 19, 1721. He was admitted to the bar in 1754. He was a member of the Continental and National Congress in 1774-1791; one of the committee to draft the Declaration of Independence, of which he was a

signer; and in 1787, in conjunction with Dr. Samuel Johnson and Oliver Ellsworth, served as a delegate to the convention charged with the duty of framing the Federal Constitution. Died in New Haven, Conn., July 23, 1793.

**Sherman, Thomas West**, an American military officer; born in Newport, R. I., March 26, 1813; was graduated at the United States Military Academy in 1836. He served in the Florida and Mexican Wars, and for his services in the latter was brevetted major, Feb. 23, 1847. At the outbreak of the Civil War he was placed in command of a battery of United States artillery, and later was made chief of light artillery in the defense of Washington, D. C. While leading a column in the assault on Port Hudson, La., on May 27, 1863, he lost his right leg, in consequence of which he was on leave of absence till February, 1864. On his return to duty he was placed in command of a reserve brigade of artillery in the Department of the Gulf, and later took charge of the defenses of New Orleans and the Southern and Eastern Districts of Louisiana. On March 13, 1865, he was brevetted Major-General of volunteers and Major-General, U. S. A., for gallant services during the war. He was retired as full Major-General, U. S. A., on Dec. 31, 1870; and died in Newport, R. I., March 16, 1879.

**Sherman, William Tecumseh**, an American military officer; born in Lancaster, O., Feb. 8, 1820; was graduated from the United States Military Academy in 1840; entered the army, and was promoted to 1st lieutenant in 1841. He acted as assistant adjutant-general in 1847, and obtained a brevet of captain, May, 1848, for meritorious services in California during the war with Mexico. After the fall of Fort Sumter he was commissioned colonel of the 13th United States Infantry, and commanded the 3d Brigade at the battle of Bull Run, July 21, 1861. On the reorganization of the National army he was made Brigadier-General of volunteers, accompanied General Anderson to Kentucky, succeeded him temporarily in command till at his own request he was relieved by General Buell and was ordered to Missouri. In the early part of 1862 he

was appointed to the command of a division under General Grant, and acted with great bravery at the battle of Shiloh, April 6; was promoted to Major-General, May 1; and when the Department of Tennessee was formed, in December, was made commander of the 15th Army Corps. He commanded the wing of the army that captured Fort Hindman, Ark., Jan. 10, 1863, after which he resumed command of the 15th Army Corps; took part in the siege of Vicksburg, which capitulated July 3, 1863; and led the expedition which captured Jackson city, July 10.

When General Grant was placed in command of the army previously under General Rosecrans, he gave the command of the Department of the Tennessee to General Sherman, who encountered General Longstreet, and obliged him to retreat, Nov. 20; and in February, 1864, made his expedition to Meridian, Miss., and broke up that important railroad center, driving General Polk's army out of Mississippi. Having been charged with the command of the army in Georgia, May 4, he commenced the expedition through that State which ended in the capture of Atlanta, the capital city. General Hood thrice attacked the Federal army and was repulsed, sustaining considerable loss. After his third failure General Hood acted merely on the defensive at Atlanta, which fell into the hands of the Nationals in the beginning of September. In October Hood began his movement toward Tennessee. Sherman followed him as far as Resaca, 75 miles, drove him from the railroad, and then sent part of his army to Tennessee to defend that State, and with the balance began his "march to the sea," to act in concert with the Union army in Virginia against Lee. The distance from Atlanta to Savannah is 290 miles. General Sherman accomplished the march with very little loss in 23 days; and Savannah fell into his hands Dec. 21, 1864. General Sherman defeated the Confederates at Bentonville, N. C., March 19, 1865, and soon afterward paid a visit to General Grant, to concert those measures for the defeat of General Lee which ended in the submission of that general and that of Gen. J. E. Johnston who sur

rendered his army to General Sherman, April 26, 1865, which was one of the closing actions of the war. General Sherman was promoted to the rank of Lieutenant-General, July 25, 1866; succeeded General Grant as General, March 4, 1869; was retired Feb. 8, 1884, and died in New York city, Feb. 14, 1891. A magnificent equestrian statue of General Sherman has been erected at the S. E. entrance of Central Park, New York, and on the very spot in Washington from which he watched, in 1865, the grand march of the Union army returned from the war, another splendid equestrian statue of the general was unveiled on Oct. 15, 1903.

**Sherman Act**, an act of the United States Congress, approved July 14, 1890. It instructed the Secretary of the Treasury to buy silver bullion to the amount of 4,500,000 ounces a month, and to issue Treasury notes in payment. The business depression of the summer of 1893 was believed to be a consequence of the bill, and President Cleveland summoned Congress to convene in special session, Aug. 7. A bill to repeal the silver-purchasing proviso of the Sherman Act passed the House Aug. 28. In the Senate, the Voorhees bill was presented as a substitute, its provisions being a repeal of the silver-purchasing clause, but affirming bimetalism as a National policy. After a protracted contest the Voorhees bill passed the Senate, Oct. 30. It was concurred in by the House Nov. 1, and the President approved it the same day.

**Sherry**, a favorite Spanish wine, prepared from small white grapes grown in the province of Andalusia, those which furnish the better qualities being cultivated in the vineyards of Xeres.

**Sherwood, Sidney**, an American educator; born in Saratoga co., N. Y., May 28, 1860; was graduated at Princeton College in 1879 and later studied at the Columbia Law School. He took a three years' course at Johns Hopkins University in history, economics, and politics; and in 1892 was made associate Professor of Political Economy there. He was the author of "History and Theory of Money"; and numerous essays. Died 1901.

**Shetland, or Zetland Islands** a group of 90 Scotch Islands (of which 30 are inhabited) lying N. N. E. of the Orkney Islands; together with which they form a county; area, 550 square miles; pop. (1921) 25,520. The climate is humid and mild, but severe storms rage during winter. It seems peculiarly healthy for the natives, who frequently attain a great age, and enjoy unusual freedom from pulmonary diseases. In the latitude of Shetland in midsummer daylight continues throughout the whole 24 hours, while in midwinter the sun is only above the horizon for 5¼ hours.

The chief occupation of the Shetlanders is fishing. The group produces peculiar diminutive breeds of horses, cattle, and sheep. The ponies, called "shelties," are remarkably sure-footed.

**Shetland Pony**, a very small variety of the horse, with flowing manes and tails, peculiar to Shetland. They are very strong, and capable of enduring great fatigue, but do not average more than eight hands in height.

**Shibboleth**, the test word used by the Gileadites under Jephthah after their victory over the Ephraimites. The latter could not pronounce the sh, and, by saying sibboleth, betrayed themselves, and were slaughtered at the ford. The word shibboleth is still used to mean a test of opinions and manners.

**Shield**, a portion of defensive armor held in the left hand or worn on the left arm to ward off sword strokes or missiles. The earliest known shields date from the close of the bronze age. They are circular and flat, or but slightly convex, with a central boss, under and across which the handle is fixed. The material is thin beaten bronze.

From the downfall of the Roman empire to the 10th and 11th centuries there seems to have been considerable variety in the forms of the shields in use among European nations, though the circular shield was perhaps the most common. The shields of the Anglo-Saxon invaders of England and of the Scandinavian Vikings were mostly circular. But the Norman shield of the 11th century was kite-shaped, and the triangular form continued to prevail till the 15th century,

becoming gradually shorter and more obtusely pointed, or heart-shaped. After the 14th century the small round buckler came into fashion, and retained its place till the 16th century. By this time the use of firearms had made the shield practically useless in warfare. Many savage tribes still use shields of wood or hide of various forms.

**Shield, William**, a British composer; born in Swallow, Durham, March 5, 1748. He studied music with zeal by help of Avison, and composed anthems that were sung in the cathedral of Durham; and ere long he was a conductor of concerts at Scarborough. But he is best known by his songs, among which are "The Heaving of the Lead," "The Arethusa," "The Thorn," "The Ploughboy," and "The Wolf." The tune of "Auld Lang Syne," as now sung, was introduced into his "Rosina," the authorship both of it and of "Comin' through the Rye" have even been claimed for Shield. In 1792 he traveled and studied in France and Italy. At his death, Jan. 25, 1829, he was Master of the King's Musicians.

**Shields, Charles Woodruff**, an American theologian; born in New Albany, Ind., April 4, 1825; was graduated at Princeton College in 1844 and later at the Princeton Theological Seminary; was ordained in the Presbyterian Church in 1849, and remained in the pastorate till 1865, when he was made Professor of the Harmony of Science and Revealed Religion at Princeton Theological Seminary. In December, 1898, he became a clergyman in the Protestant Episcopal Church, but still continued in his professorship. Died Aug. 26, 1904.

**Shields, G. O.**, an American sportsman; born in Batavia, O., Aug. 26, 1846; was mainly self-educated; served in the Union army in 1861-1865; was a writer for the "Inter-Ocean," "Harper's Magazine," Chicago "Tribune," etc., in 1866-1894. In the latter year when "Recreation" was founded he was made its manager and editor. In 1898 he formed the League of American Sportsmen, of which he was president till 1900. He also formed the Camp Fire Club in 1897, and became its president.

**Shields, James**, an American military officer; born in Dungannon, Ireland, in 1810; came to the United States in 1826; became a lawyer; served through the Mexican War, and was brevetted Major-General for gallantry at Cerro Gordo and Chapultepec. He was elected to the United States Senate from Illinois in 1849, and from Minnesota in 1857. When the Civil War broke out, he volunteered and entered the Federal service. He commanded the division which defeated "Stonewall" Jackson near Winchester, March 23, 1862; was defeated in an engagement with the Confederates at Port Republic, June 9, 1862; and resigned his commission in 1863. He died in Ottumwa, Ia., June 1, 1879.

**Shiites**, the name given by orthodox Muslims or Sunnites to Ali's followers. They were the champions of Ali's right to be Mohammed's successor as being his cousin and son-in-law; and after Ali's death they took the side of the sons Hassan, Hussein, and Mohammed ibn al-Hanafiyyah. The Persians are Shiites.

**Shillaber, Benjamin Penhalow**, an American humorist; born in Portsmouth, N. H., July 12, 1814; was best known as the author of the popular sayings of "Mrs. Partington." He was connected with the "Boston Post," the "Saturday Evening Gazette," and other periodicals, and wrote "Rhymes with Reason and Without," "Ike Partington and His Friends," etc. He died in Chelsea, Mass., Nov. 25, 1890.

**Shilling**, an English silver coin and money of account equal to 12 pence, or the 20th part of a sovereign or pound sterling; and equivalent in the United States to about 24 1/3 cents. In the United States, a denomination of money formerly in use, differing in value relatively to the dollar in different states, but below that of the English shilling, with a corresponding value for the penny and the pound. The diversity arose from the scarcity of coin in the American colonies, and was fixed at an early period in their history. York shilling, a designation given in some parts of Canada to a silver sixpenny piece or English sixpence.



**Shiloh, Battle of**, one of the most memorable battles of the American Civil War. Shiloh was a locality in Hardin co., Tenn., near Pittsburg Landing, on the Tennessee, and 88 miles E. of Memphis. It took its name from a log chapel known as "Shiloh Church." The battle was fought on April 6 and 7, 1862, Grant and Sherman leading the Federals, and Albert S. Johnston and Beauregard the Confederates. The first day the Confederates, taking the Federals by surprise, drove them from their lines with heavy loss in men and guns; but the second day the Federals, having received reinforcements under Buell, and largely outnumbering the Confederates, regained their lines, and forced the Confederates to retreat to their former position at Corinth. General Johnston was killed on the first day. The Federal loss was 13,573; the Confederate 10,699.

**Shimonoseki, or Simonoseki**, a port, fortified town, and railway terminal of Japan, at the S. W. point of Hondo, on the narrow strait separating Hondo from Kiushiu. It is an important station for the transmission of foreign imports to the interior, and for export traffic. In 1864 it was bombarded by an allied force of United States, British, French, and Dutch warships, owing to an unprovoked attack on foreign commercial ships; and here in 1895 the treaty of peace was signed which ended the Chino-Japanese War. Pop. (Est.) 75,000.

**Shimose**, an explosive of high power, invented by Gian Shimose (b. 1858), a Japanese chemist.

**Shingles**, an eruptive disease which starts from the backbone and goes half round the body, forming a belt of inflamed patches with clustered vesicles. It rarely encircles the body, though the popular opinion that if it does it will prove fatal is a delusion.

**Shin Plaster**, a bank-note, especially one of a low denomination; a piece of paper money. According to Bartlett, from an old soldier of the Revolutionary period having used a quantity of worthless paper currency as plasters for a wounded leg.

**Shinto**, the religious belief of the people of Japan prior to the introduction of Buddhism from Korea in A. D. 552. The new belief almost entirely

absorbed the old, being, however, itself modified in the process.

**Shiogoon, or Tycoon**, the title of the hereditary military ruler of Japan for many centuries till the revolution of 1868, which reinstated the Mikado in power.

**Ship**, in the most general sense, a vessel intended for navigating the ocean. In contradistinction to boat, which is the most general term for a navigable vessel, it signifies a vessel intended for distant voyages. Ships are of various sizes, and fitted for various uses, and receive various names, according to their rig and the purposes to which they are applied, as man-of-war ships, transports, merchantmen, barques, brigs, schooners, luggers, sloops, xebecs, galleys, etc. The name as descriptive of a particular rig, and as roughly implying a certain size, has been used to designate a vessel furnished with a bowsprit and three or four masts, each of which is composed of a lower mast, a top mast, and a top-gallant mast, and carrying a certain number of square sails on each of the masts. These masts are named, beginning with the foremost, the fore, the main, and mizzen masts; and when there is a fourth it is called the jigger mast. The principal sails are named according to the masts to which they belong. Owing to increase of size and the development of steam navigation the restricted application of the term ship is now of little value.

**Ship Canal**, a canal for the passage of sea-going vessels. Ship canals are intended either to make an inland or comparatively inland place a seaport; to connect sea with sea, and thus obviate a long ocean navigation; or to promote direct navigation by avoiding obstructions. See CANAL.

The artificial waterways which may properly be termed ship canals are ten in number:

- (1) The Suez Canal, begun in 1859 and completed in 1869.
- (2) The Kronstadt and St. Petersburg Canal, begun in 1877 and completed in 1890.
- (3) The Corinth Canal, begun in 1884 and completed in 1893.
- (4) The Manchester Ship Canal, completed in 1894.
- (5) The Kaiser Wilhelm Canal, connecting the Baltic and the North Seas, completed in 1895.
- (6) The Elbe and Trave Canal, connecting the North

Sea and the Baltic, opened in 1900. (7) The Welland Canal, connecting Lake Erie with Lake Ontario. (8) and (9) The two canals, United States and Canadian, respectively, connecting Lake Superior with Lake Huron. (10) The Harlem River Canal, connecting the Hudson River with Long Island Sound, completed in 1895. (11) Port Arthur Canal, connecting Port Arthur, on Sabine Lake, Tex., with the Gulf of Mexico, completed in 1899. (12) The Cape Cod Canal, connecting Buzzards and Barnstable Bays, completed in 1914. (13) The Panama Canal, connecting the Caribbean Sea with the Pacific Ocean.

**Ship Pendulum**, a pendulum with a graduated arc, used in the navy to ascertain the heel of a vessel, so that allowance may be made in laying a gun for the inclination of the deck.

**Shippen, Edward**, an American physician; born in New Jersey, June 18, 1826; was graduated at Princeton College in 1845, and at the University of Pennsylvania in 1848, and commissioned surgeon in the navy in 1861. He was on the "Congress" when she was destroyed by the "Merrimac" in Hampton Roads; was present at both attacks on Fort Fisher, as surgeon of the "New Ironsides"; and served in the operations at Bermuda Hundred. After the Civil War he made the Russian cruise under Admiral Farragut; was commissioned medical inspector in 1871; fleet surgeon of the European squadron in 1871-1873; in charge of the Naval Hospital in Philadelphia in 1874-1877; became medical director in 1876; and was president of the naval medical examining board in 1880-1882. He was a member of several medical and naval organizations, and author of "Thirty Years at Sea"; "A Christmas at Sea," and numerous magazine articles.

**Ship Railway**, a railway system for the transportation of vessels over stretches of land. The most noteworthy one was that planned by James B. Eads for the transportation of vessels across the Isthmus of Tehuantepec. It was devised as a saving in time and money over the Panama or Nicaraguan canal routes, and a company was incorporated in 1887 to construct it, but Captain Eads dying soon after, the scheme was abandoned.

**Ship's Papers**, the papers or documents required for the manifestation of the property of the ship and cargo. They are of two kinds: (1) Those required by the laws of a particular country, as the certificate of registry, license, charter-party, bills of lading, bills of health, etc., required by the laws of the United States to be on board American ships. (2) Those required by the laws of nations to be on board neutral ships, to indicate their title to that character.

**Ships, Registration of**, the enrollment of ships on a government register. In the United States the navigation laws require all vessels to be registered periodically, and steam vessels to be inspected and certificated. A list of merchant vessels is published analogous to Lloyd's list issued in London. The Bureau of Navigation, in the Treasury Department at Washington, has charge of registration.

**Ship Worm**, an animal rightly called the teredo; once thought to be a worm, but is not a worm, though its body looks long and worm-like. It is covered with a sort of sheath or shelly coat, and is a kind of mollusk. It is called ship worm because it bores holes into ship timbers, and often injures them so much that they will crumble at the touch. Not only ships' timbers but all other kinds of woodwork under water are eaten by it. Once the coast of Holland was threatened with a deluge because the ship worm ate the piles of the dyke which kept out the sea, and it cost a great deal of money to repair them. Ships' bottoms are covered usually with copper plates to save their timbers and planks from these animals.

**Shire**, in the United States, a division of a State, comprising several contiguous townships—a distinction must be drawn in the application of this word as between English and American usage; as, for instance, it is correct in the United States to say "the county of Berkshire"; whereas in England such an expression would be tautological, or, in other words, would convey the sense of "a county of a county."

**Shirley, James**, an English dramatist; born in London, England, Sept. 13, 1596; went to Merchant Taylors' School, whence he passed to

1612 to St. John's College, Oxford. Most of his plays are tragi-comedies and his best work is ever the tragic and pathetic portions. In 1646 he printed a volume of his poems, including his masque of "The Triumph of Beauty." As a writer of masques he is second only to Ben Jonson. He died in poverty, Oct. 29, 1666.

**Shishak**, the name of several monarchs of the 22d or Bubastite Egyptian dynasty.

**Shitepoke**, the small, green heron of North America. The plumage of its crest and upper parts is mainly glossy green; the under parts are brownish-ash, varied with white on its belly. Also called poke and fly-up-the-creek.

**Shittim Wood**, the wood of the shittah tree of the Bible, of which the tabernacle in the wilderness was principally constructed. It is a light but cross-grained and enduring wood, of a fine orange-brown color.

**Shoad**, or **Shode**, in mining, surface ore in pieces mixed with other matters, and indicating the outcrop of a lode or vein in the vicinity. The method of finding the vein by tracing the shoad stones to their source at the strike is called shoading. Holes dug to prospect or intercept the vein are called shoad pits.

**Shock**, a collection of sheaves standing together in the field for the grain to ripen; also called a shook or stook. It has usually 12 sheaves, but customs differ. Also a collection of cut stalks of corn standing in the field around a central core of four stalks, whose tops are diagonally woven together and bound at the intersection.

**In electricity**: Frictional; it is a sensation as of a more or less painful concussion or blow attended by a sudden contraction or convulsion of the muscles, produced by a discharge through them of electricity from a charged body.

**Shock, William Henry**, an American engineer; born in Baltimore, Md., June 15, 1821; entered the United States navy as an assistant engineer in 1845; served in the Mexican War, and was promoted chief engineer March 11, 1851. He superintended the building of the marine en-

gines at West Point, N. Y.; was president of the examining board of engineers in 1860-1862; had charge of the construction of the river monitors at St. Louis in 1862-1863; was fleet engineer under Admiral Farragut at Mobile and later under Admiral Thatcher in 1863-1865; and engineer-in-chief of the navy in 1877-1883, being retired June 15, 1883. He invented and patented numerous improvements in guns, steam devices, etc., and was the author of "Steam Boilers; Their Design, Construction and Management." He died in 1905.

**Shoddy**, old woolen or worsted fabrics torn to pieces by a machine having spiked rollers (termed a devil), cleansed, and the fiber spun with a certain proportion of new wool, the yarn being afterward woven into the full bodied but flimsy fabric also known as shoddy, and made into cheap cloth, table covers, etc.



SHOE-BILLED STORK.

**Shoe**, a covering of protection for the foot, usually of leather. The ancients usually wore sandals. The cres-

cent was employed as an ornament on the shoes of Romans of exalted rank, who appear to have carried on the art of shoe making with great taste and skill. Only one instance is known of an ancient monument exhibiting shoes with separate heel pieces. The custom of making shoes right and left was common in classical times.

In 1927 it was reported that there were in the leather boot and shoe industry, 1,400 plants with a total output for the year of 343,605,905 pairs of shoes. The State of Massachusetts was first in this industry with 78,182,264 pairs, and New York State next with 75,687,268. There were 3,003,839 pairs of shoes imported.

**Shonts, Theodore Perry**, ex-Chairman of the Panama Canal Commission, b. 1856, Crawford Co., Pa. He graduated at Monmouth Coll., Ill., 1876, became an accountant, a railroad official, manager, and president; in 1905 head of the Panama Canal Works and in 1907 of the N. Y. C. Interborough-Metropolitan Company.

**Shooting Star**, a small celestial body suddenly becoming luminous and darting across the sky, its course being marked by a streak of silvery radiance, which is an optical illusion caused by the rapidity of its passage.

**Shorey, Paul**, an American educator; born in Davenport, Ia., Aug. 3, 1857; was graduated at Harvard University in 1878; admitted to the bar in Chicago in 1880; was Professor of Greek at Bryn Mawr College in 1885-1892; then at the University of Chicago; editor of "Classical Philology" from 1908.

**Short, Charles**, an American educator; born in Haverhill, Mass., May 28, 1821; was graduated at Harvard University in 1846. In 1863 he accepted the chair of moral and intellectual philosophy and the presidency of Kenyon College, Ohio; was Professor of Latin at Columbia University in 1868-1886. He died in New York city, Dec. 24, 1886.

**Shorter Catechism**, a Presbyterian catechism composed under the direction of the Westminster Assembly. It was called Shorter to distinguish it from the Larger Catechism, which had been finished just previously. A small Committee of Assembly was appointed on Aug. 5, 1647, to

prepare the Shorter Catechism. When completed, it was presented to the British Parliament on Nov. 26. Both Houses of Parliament thanked the divines who had composed it, and ordered 600 copies, but requested that proofs should be appended. This being done, the Catechism with proofs was presented to Parliament on April 16, 1648, and ordered to be printed. It was adopted by the Scotch General Assembly on July 28, 1648, the decision being ratified by the Scotch Parliament on Feb. 7, 1649. It is still most extensively used among English-speaking Presbyterians all over the world.

**Shorthand**, an art by which writing is abbreviated, so as to keep pace with speaking. Its great and general utility has been recognized in every age, and numberless systems have been devised to facilitate its acquirement. It was practised by the ancients for its secrecy as well as for its brevity, and a work is extant on the art, which is ascribed to Tiro, the freedman of Cicero. The first English treatise on stenography, in which marks represent words, was published in 1588 by Timothy Bright, M. D., under the title, "Characterie; an Art of Short, Swift, and Secret Writing by Character."

In 1837 appeared Pitman's "Phonography"—the first really popular system. Melville Bell, following in the path marked out by Pitman, founded his system on the sounds of the language. The first sketch appeared in 1849; in 1852 the first complete edition, under the title "Semi-Phonography."

Shorthand is now largely practised in both the United States and England, and has extended its benefits to many classes besides that of the professional reporter. This is due chiefly to the excellences of Pitman's system and to his activity in disseminating its principles. The existence of two styles of phonography, one adapted for letter writing and the other for reporting—the second, however, being only an extension of the first, and not a new system in itself—has been the chief basis of the popularity of phonetic shorthand. Popular modifications of Pitman's system have been made in the United

## Shorthorn

States by Graham, Burnz, and Munson.

**Shorthorn**, a breed of cattle characterized by short horns, rapidity of growth, aptitude to fatten, and good temper. It was produced by Charles and Robert Colling, at Ketton and Barmpton, near Darlington, England, by a process of in-and-in breeding between 1780 and 1818. The process has been followed in the United States since 1817.

**Shoshone Falls**, an attractive fall in the Lewis or Snake river, Idaho. They rank among the waterfalls of North America, next to those of Niagara in grandeur, being about 250 yards wide and 200 feet high.

**Shoshone Indians**, a family of American Indians, also known as Snakes, living since 1805 to the W. of the Rocky Mountains; they are now on four reservations, two in Idaho (1,231), one in Wyoming (842), and one in Nevada (329). Hostilities ceased in 1867, after an expedition had destroyed a great part of their braves and stores. Total number 2,402.

**Shot**, any solid projectile; those for cannon and carronades being of iron, those for small arms of lead. The latter are known as bullets and small shot. The shot discharged from artillery are no longer made solid, if of more than three pounds in weight, except when made for old style ordnance, such as smooth bore or Armstrong guns. Even the Pallister chilled shot used for piercing armor are not solid, but are made with a small internal cavity.

**Shoulder Joint**, the articulation of the upper arm or humerus with the glenoid cavity of the scapula or shoulder blade. The shoulder joint forms an example of the ball-and-socket joints, the ball-like or rounded head of the humerus working in the shallow cup of the glenoid cavity. Such a form of joint necessarily allows of very considerable movement, while the joint itself is guarded against dislocation or displacement by the strong ligaments surrounding it, as well as by the tendons of its investing and other muscles.

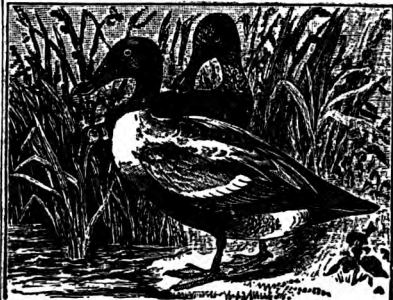
**Shovel**, **Sir Cloudesley**, an English naval officer; born probably

## Showers of Fishes

in Clay, a Norfolk fishing village, about 1650. He was apprenticed to a shoemaker, but he ran away to sea, and rose by his remarkable ability and courage until in January, 1705, he was made rear-admiral of England. That year he took part with Peterborough in the capture of Barcelona, but failed in his attack on Toulon in 1707. On the voyage home his ship, the "Association," struck a rock off the Scilly Isles on the foggy night of Oct. 22, 1707, and went down with 800 men. Four vessels of the squadron perished with 2,000 men. Sir Cloudesley, washed ashore in a semi-conscious state, was murdered by a woman-wrecker.

**Shovel Fish**, a genus of ganoid fishes belonging to the sturgeon family, and found in North American rivers. It is so named from the flattened form of the head.

**Shoveler**, in ornithology, the broadbill or spoonbill duck, widely distributed over the Northern Hemisphere. Length about 20 inches; bill much widened on each side near tip,



SHOVELER DUCK.

somewhat resembling that of the spoonbill; head and upper part of neck in adult male rich green, lower part white, back brown, breast and abdomen chestnut brown.

**Showers of Fishes** occasionally fall in different parts of the world, exciting great astonishment. Such downfalls are more common in tropical countries. In India a shower of fishes varying from a pound and a half to three pounds in weight has been re-



## Shrapnel

ported. They are always of kinds abundant in the sea or fresh waters of the neighborhood.

**Shrapnel, Henry**, an English inventor, entered the Royal Artillery in 1779, served with the Duke of York's army in Flanders, and shortly after the siege of Dunkirk invented the case shot known by the name of shrapnel shells, an invention for which he received from government a pension of \$6,000 a year in addition to his pay in the army. He retired from active service in 1825, attained the rank of Lieutenant-General in 1827, and died in 1842.

**Shreve, Henry Miller**, an American inventor; born in Burlington co., N. J., Oct. 21, 1785; early engaged in navigation on the Western rivers, and in 1815 ascended the Mississippi to Louisville, Ky., in the "Enterprise," the first steam vessel that ever performed such a voyage. Later he built the "Washington" of 400 tons burden, with improvements on Robert Fulton's steamboat; remodelled it in 1824, so as to operate each of the side wheels with a separate engine; invented the snag boat "Heliopolis," for removing snags and sawyers from rivers; and in 1829 patented a steam battering ram for harbor defense. In 1826 he was made superintendent of improvements in Western rivers, and continued in that office till 1841. He died in St. Louis, Mo., March 6, 1854.

**Shreveport**, city and capital of Caddo parish, La.; on the Red river and several railroads; 326 miles N. W. of New Orleans; is one of the most important cities in the State; in a noted stock-raising and cotton-growing section; ships large quantities of cotton, lumber, grain, wool, and hides; manufactures cotton compresses, cotton-seed oil and meal, fertilizers, and machinery; and contains a Federal Building, and Federal Marine Hospital. Pop. (1928 Est.) 81,300.

**Shrew**, in zoölogy, a popular name for any individual of the Soricidæ.

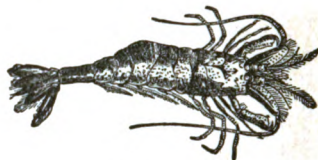
**Shrew Mole**, a genus of insectivorous mammals, belonging to the family of shrew mice, but also by some zoölogists placed in the mole family. It is found in North America, usually near rivers and streams, and burrows after the fashion of the common mole, like which, also, its fur is fine and

## Shrub

closely set. The average length is about seven inches.

**Shreyvogel, Charles**, an American artist; born in New York city, Jan. 4, 1861. For the excellence of his work he was awarded the "Thomas B. Clarke Prize" at the National Academy of Design in New York city, together with a medal at the Paris Exposition in 1900.

**Shrimp**, a popular name for any individual of the genus Crangon, allied to lobster, crayfish, and prawn. The common shrimp about two inches long,



COMMON SHRIMP.

greenish-gray dotted with brown, is esteemed as an article of food; other species, from warmer latitudes, are equally prized. They are usually taken by a net.

**Shrine**, a case, a box, or reliquary in which the bones or other remains of saints were deposited. They were often richly ornamented with gold, precious stones, and elaborate carvings, and were generally placed near the altar of the church.

**Shrouds**, a range of large ropes extended from the heads of the lower masts to both sides of a ship to support the masts, and named, from the masts to which they belong, the main, fore, and mizzen shrouds. Topmast, topgallant, and bowsprit shrouds are all similar in their object.

**Shrub**, in botany, a plant with woody stem and branches like a tree, but of smaller size, not generally exceeding 20 feet in height, and branching near the root, so as to have no main stem of considerable height. When a shrub is of small size and much branched, it is often called a bush. There is no more important botanical distinction between trees and shrubs, and the same genus very often includes species of both kinds. Many shrubs, as honeysuckles, are climbers.

Also a liquor composed of acid, particularly lemon juice and sugar, with spirit to preserve it.

**Shufeldt, Robert Wilson**, an American surgeon; born in New York city, Dec. 1, 1850; was graduated at the Medical Department of Columbia University in 1876. He was 1st lieutenant and later captain in the medical department of the army in 1876-1889; and was honorary curator of the Smithsonian Institution, 1895-1897.

**Shumway, Edgar Solomon**, an American educator; born in Belcher-town, Mass., June 6, 1856; was graduated at Amherst College in 1879; then studied abroad, was adjunct and full Professor of Latin Language and Literature at Rutgers College in 1883-1900. He lectured on Roman law at the University of Pennsylvania in 1900, was also for some years university extension lecturer for New Jersey and New York on Greek and Hellenistic and Roman art.

**Shurtleff, Roswell Morse**, an American artist; born in Rindge, N. H., June 14, 1838; was graduated at Dartmouth College in 1851. He made numerous paintings of landscapes in both water and oil; many of the most excellent of these are scenes in the Adirondacks. He died June 6, 1915.

**Shute, Daniel Kerfoot**, an American physician; born in Alexandria, Va., Oct. 22, 1858. He graduated at Columbia University in 1879, and at its Medical Department in 1883. He was Professor of Anatomy and of Ophthalmology at George Washington University in 1888-1910.

**Shut-in Society**, an organization in the United States founded for the purpose of brightening the life of persons in sickness by providing various objects which they would otherwise be unable to obtain. The members of local societies, besides supplying their sick members with fruit, flowers, reading material, medicines, and nourishing food, also undertake to supply easy chairs and other helps to convalescents. The Shut-in Society is not connected with any religious or other organization.

**Shuttle, Schyttl, or Shyttell**, in weaving, an instrument used by weavers for shooting or passing the thread of the weft from one side of

the web to the other, between the threads of the warp. It is a boat shaped piece of wood which carries a bobbin or cop containing the yarn of the weft or woof.

In a sewing machine, the sliding threadholder which carries the lower thread between the needle and the upper thread, to make a lock stitch. In hydraulic engineering, the gate which opens to allow the water to flow onto a wheel.

**Siam**, a kingdom embracing a great part of the Indo-Chinese Peninsula, and part of the Malay Peninsula, and lying between Burma on the W., and Annam and Cambodia on the E. and S. E. Its boundaries are ill defined because of various cessions of territory in 1904-9 to Great Britain and France, but its area in 1922 was estimated at about 195,000 square miles; pop (1925-26) 9,831,000.

A large part of the territory is not well known. Siam proper consists mainly of the low lying alluvial basin of the Menam and its numerous tributaries, which flows S. into the Gulf of Siam, forming an extensive and intricate delta, on which is situated Bangkok, the capital. This alluvial plain, intersected by numerous streams and canals, is extremely fertile, producing crops of rice, sugar, cotton, maize, and indigo. Both sides of the Manam basin are skirted by densely wooded ranges of hills, forming the water partings toward the Salwin and Mekong, the latter of which is the great river of Eastern Siam. The minerals include gold, tin, iron, copper, lead, zinc, and antimony, besides several precious stones, such as the sapphire, Oriental ruby, and Oriental topaz. Mining is chiefly in the hands of the Chinese. Cocoa and areca palms are numerous in Siam; fruits are abundant and of excellent quality; black pepper, tobacco, cardamoms, and gamboge are important products. The forests produce aloes wood, sappan wood, teak timber, bamboos, rattans, gutta percha, dammar, catechu, benzoin, etc. Among wild animals are the tiger, leopard, bear, otter, orang-outang, single-horned rhinoceros, and elephant, which here attains a size and beauty elsewhere unknown. The last, when of a white color, is held in the highest reverence. The forests abound

with peacocks, pheasants, and pigeons; and in the islands are large flocks of the swallows that produce the famed edible birds' nests. Crocodiles, geckoes, and other kinds of lizards, tortoises, and green turtles are numerous. The python serpent attains an immense size, and there are many species of snakes.

Nearly the whole of the trade of Siam is in the hands of foreigners, and the foreign trade centers at Bangkok. The chief export is rice, after which come teak, pepper, dried fish, birds' nests, cattle, and teel seed. The chief imports are gold leaf and treasure and cottons, after which come opium, china goods, gunny bags, hardware, kerosene oil, and silk goods. The trade is chiefly with Hong Kong and Singapore, and to a much less extent with Lower Burma and Great Britain.

The Siamese are members of the great Mongolian family, and of the same race as the people of Burma and Annam. The Siamese profess Buddhism, introduced into the country about the middle of the 7th century. Christianity is now making some progress in the country. The language forms a connecting link between the Chinese and Malay. The written characters seem to be derived from a form of Sanskrit.

The executive power is exercised by the king in conjunction with a Cabinet of Ministers; the legislative by a Council created in 1895, and consisting of 40 members, including the Ministers, 14 royal princes, and others appointed by the king. There are 16 provinces and some tributary districts, and the metropolitan province of Bangkok, under control of the Minister of Local Government. The revenue in 1926-27 was \$39,138,090; expenditure \$39,041,810; imports, \$83,738,415; exports, \$112,987,650, and total national debt, \$59,418,220. Siam declared war against Germany and Austria-Hungary on July 23, 1917.

**Siamese Twins**, the best known example of two male individuals having their bodies connected inseparably from their birth, being joined by a thick fleshy ligament from the lower end of the breastbone of each, having the common navel on its lower border so that they stood in a sort of oblique

position toward each other. Born in Siam in 1811, of a Chinese father and a Chino-Siamese mother, and named Eng ("right") and Chang ("left"), they were brought to the United States in 1829. They were on exhibition in America and Europe a number of times, and ultimately settled in North Carolina. They married two sisters and had large families of children, none of whom exhibited any malformation. Chang received a paralytic stroke in 1870, and three years later was affected with an inflammatory disease of the respiratory organs. He died unexpectedly, Jan. 17, 1874, while his brother was asleep, and Eng died a few hours afterward. The Siamese twins attracted great attention during their lifetime, particularly from physiologists and medical men, some of whom thought that the ligament connecting them might have been cut without causing the death of either.

**Siberia**, a great division of the Russian dominions; occupies all North Asia, stretching uninterruptedly E. from the Ural Mountains to the Pacific Ocean, and S. from the Arctic Ocean to the Chinese dominions and Russian Central Asia; total area, 4,831,882 square miles; pop. (1922) 9,257,825. It is divided into the governor-generalships of Western Siberia, Eastern Siberia, and the Amur region. A region of such vast extent has naturally a very diversified configuration; but generally speaking Siberia may be considered as a vast inclined plane sloping gradually from the Altai, Syan, and Yablonoi Mountains on the S. to the Arctic Ocean on the N. In the E. it is traversed in different directions by several mountain ranges, but elsewhere it is almost unbroken by any greater heights than a few hills. The coast line is very extensive, but the Arctic Ocean is ice bound at least 10 months out of the 12, and is almost valueless for commercial purposes.

Siberia has a warm summer, but the winter is exceedingly severe. South Siberia has, in many parts, a very fertile soil, which yields rich crops of wheat, rye, oats, and potatoes; but immense tracts of Siberia are utterly unfit for tillage, more particularly the tundras, or great stretches of boggy country along the Arctic Ocean. Cattle breeding and bee keeping are large-

ly pursued. Hunting and fishing are also sources of remuneration, ermines, sables, and other furbearing animals being numerous. The wild animals include the elk, reindeer, and other deer, bear, wolf, white and blue fox, lynx, etc. The forests are extensive and valuable. Manufactures and mining are in a backward state, though Siberia has very considerable mineral wealth. Large quantities of gold are obtained, as well as silver, platinum, lead, iron, coal, etc. The trade is mainly with Russia, which takes every year from Siberia about \$20,000,000 worth of raw products, chiefly tallow, hides, furs, and grain; and sends every year to Siberia about \$60,000,000 worth of manufactured wares. The foreign trade is insignificant. Yermak the Cossack, entered Western Siberia in 1580, and made a rapid conquest of the W. portion of the country, which he handed over to Ivan the Terrible of Russia. Exile to Siberia began soon after the conquest, and ever since Siberia has been a great penal colony. Hardened convicts and important political offenders are kept under close control, but the great majority of the exiles are simply placed in a particular district and allowed to shift for themselves. The Russian population of Siberia, which is more than three-fourths of the whole, consists largely of exiles or the descendants of exiles. The railway connection between Russia and Siberia forms the greatest railway system in the world.

**Sibley, Henry Hastings**, an American military officer; born in Detroit, Mich., Feb. 20, 1811. He was elected the first governor of Minnesota in 1858; organized and led a military force against the Sioux Indians in 1862; and was commissioned a Brigadier-General of volunteers. He put an end to the Sioux War in 1863, and was brevetted Major-General. During the last 20 years of his life he took no active part in political issues, but identified himself with the educational interests of the State. He died in St. Paul, Minn., Feb. 18, 1891.

**Sibley, Henry Hopkins**, an American military officer; born in Natchitoches, La., May 25, 1816; was graduated at the United States Military Academy in 1838; served in the Mexican War and in Florida; took

part in the notable military expedition to Utah; and was conspicuous in the campaign against the Navajo Indians. He entered the Confederate army in 1861 and attained the rank of Brigadier-General. He went to Egypt after the war, and in 1869 entered the Egyptian army and as Brigadier-General served under the Khedive. In 1875 he returned to the United States, and died in Fredericksburg, Va., Aug. 23, 1886.

**Sibley, John Langdon**, an American librarian; born in Union, Me., Dec. 29, 1804; was graduated at Harvard College in 1825; and was chief librarian of Harvard University in 1856-1877, when he was retired from active service and made librarian emeritus. He was a Fellow of the American Academy of Arts and Sciences and of the Massachusetts Historical Society; founder of a charity fund of Phillips Exeter Academy; and editor of the "American Magazine of Useful Knowledge." He died in Cambridge, Mass., Dec. 9, 1885.

**Sibutu**. See CIBITU.

**Sicard, Montgomery**, an American naval officer; born in Utica, N. Y., Sept. 30, 1836; was appointed to the navy in 1851; promoted lieutenant in 1861; and assigned to the Gulf blockading squadron in 1861. As executive officer of the "Oneida" he participated in numerous engagements. Later, as commander of the "Seneca," he participated in both attacks on Fort Fisher. At the outbreak of the Spanish-American War he was placed on the sick list, and the command given to Rear-Admiral Sampson; but after a partial recovery he was made president of the Board of Strategy. He died in Westerville, N. Y., Sept. 14, 1900.

**Sicilian Vespers**. Charles of Anjou, brother of Louis IX., King of France, having seized Sicily by virtue of a grant from Pope Alexander IV., the natives rose against the French on Easter Monday, March 31, 1282. A massacre of 2,000 French soldiers ensued. It was begun by a crowd emerging from a Vesper service. It is known in history as the Sicilian Vespers.

**Sicilies, The Two**, a former kingdom of Italy, consisting of Naples (or S. Italy) and Sicily. In 1047, while Greeks and Saracens were struggling for the possession of Lower Italy



and Sicily, the 12 sons of Tancred de Hauteville, a count in Lower Normandy, came in with their followers. Robert Guiscard, one of these brothers, subdued Apulia and Calabria, taking the title of duke, and his youngest brother, Count Roger, conquered Sicily. Roger's son and successor, Roger II., completed the conquest of all Lower Italy by subduing Capua, Amalfi, and Naples, at that time celebrated commercial republics, and in 1130 took the title of king, calling his kingdom the Kingdom of the Two Sicilies. In 1759, when Charles IV. ascended the Spanish throne under the name of Charles III., he conferred the Kingdom of the Two Sicilies on his third son Ferdinand, and decreed at the same time that it should never again be united to the Spanish monarchy. The reign of Ferdinand extended through the stormy period of the French Revolution and the subsequent European commotions. A varied experience followed during which the country was successively subject to Germany, France, and Spain. In 1860, an insurrection broke out in Sicily, and an expedition of volunteers from Piedmont and other Italian provinces under Garibaldi sailed from Genoa to the assistance of the insurgents. The result was that the Neapolitan troops were driven from the island. Garibaldi, following up his success, crossed over to the mainland, where he met little or no opposition; Francis II. fled from Naples; the strong places in his hands were reduced; and by a popular vote the Kingdom of the Two Sicilies ceased to exist as such and became an integral part of the Kingdom of Italy.

**Sicily**, an island belonging to the kingdom of Italy, in the Mediterranean, the largest and the finest in that sea, lying at the S. W. extremity of Italy, from which it is parted by the narrow Strait of Messina. Area, 9,936 square miles; pop. (census of 1921) 4,061,452. The plains and valleys which compose the greater portion of the island are remarkably fertile, and yield large crops of maize, wheat, rice, pulse, all kinds of vegetables, and abundance of fruits; the silk worm is largely cultivated. The minerals are marble, iron, copper, stone, agate, jasper, salt, and coal,

while of sulphur the yield is enormous—above 150 mines, finding constant work for 12,000 men. The manufactures are unimportant; the exports comprise all native produce. A frightful earthquake in December, 1908, destroyed the city of Messina and many other places in Sicily and Italy.

**Sickingen, Franz, von**, a famous German knight; born in 1481. As a protector of the oppressed, he tried to abolish the ecclesiastical principalities and established the Reformation. Besieged in his castle, he was mortally wounded, and died May 7, 1523.

**Sickles, Daniel Edgar**, major-general U. S. A., retired; born New York, Oct. 20, 1825. Was admitted to the bar in 1844, was a member of the legislature in 1847, corporation attorney of New York in 1853, and appointed secretary of American legation in London, same year. He was also major in the 12th Regiment of the New York National Guard. Was in the State Senate 1856-1857, and in the latter year was elected to Congress, and reelected in 1859. On February 27th, 1859 he shot and killed Philip Barton Key for intimacy with Mrs. Sickles, and after a trial which lasted twenty days he was acquitted of the charge of murder. His bravery in the Civil War was recognized by promotion to major-general, and he lost a leg at Gettysburg. He was United States minister to Spain in 1869-73, and subsequently was president of the New York State Board of Civil Service Commissioners, Commissioner of Emigration, Sheriff of New York, and member of Congress. He was a Commander of the Legion of Honor of France. He died May 2, 1914.

**Siddons, Mrs. Scott**, an English actress; born in India in 1844; the great-granddaughter of Sarah Siddons; was educated in Germany. As Lady Macbeth she made her first professional appearance in England, at Nottingham. She appeared in the United States first as a dramatic reader in New York city, and she made her debut as a dramatic star at the Boston Museum about 1868.

**Sidereal Clock**, a clock regulated to measure sidereal time, reckoned by sidereal days of 23 hours, 56 minutes, 4 seconds mean solar time, which are measured by the interval between two



successive passages of any fixed star over the same meridian, and divided into 24 sidereal hours.

**Sidereal Time**, time measured by the apparent motion of the stars. A sidereal day is the time from the passage of a star across the meridian till its next passage, and is exactly the period of the revolution of the earth on its axis. It is the most constant unit of time we possess. Its length is 23 hours 56 minutes 4.098 seconds. A sidereal year is the period in which the fixed stars apparently complete a revolution and come to the same point in the heavens, and is the exact period of the revolution of the earth round the sun. There are 366.2563612 sidereal days in a sidereal year.

**Sidney or Sydney, Algernon**, an English military officer; born in Penshurst, Kent, in 1622. In 1644 he was lieutenant-colonel of a regiment of horse in Manchester's army, and was severely wounded at Marston Moor. In 1645 he was given the command of a cavalry regiment in Cromwell's division of Fairfax's army, and was returned to Parliament for Cardiff. He was nominated one of the commissioners to try Charles I., but took no part in the trial, though he approved of the sentence. He was soon after appointed a commissioner to mediate a peace between Denmark and Sweden, and while he was engaged in this embassy the Restoration took place. Conscious of the offense he had given the royal party he refused to return and remained an exile for 17 years. At length, in 1677, the influence of his friends procured him permission to return to England. After the death of Shaftesbury in 1682, he entered into the conferences held between Monmouth, Russell, Essex, Hampden, and others, and on the discovery of the Rye House Plot he was arrested and sent to the Tower on a charge of high treason. He was tried before the notorious Chief-Justice Jeffreys, and his trial was conducted with a shameless absence of equity which has conferred on him all the glory of a martyr. He was executed on Tower Hill, Dec. 7, 1683. His "Discourses Concerning Government" were first printed in 1698.

**Sidon**, anciently a city of Phœnicia; on the E. coast of the Mediterranean;

half way between Tyre and Beyrout. It soon rose, both by its exceptional position and the enterprising character of its inhabitants, to the first position among the cities of Phœnicia, so that the whole country is sometimes designated by the name Sidon, "The Great," "the Metropolis." The extensive commerce of Sidon is well known from ancient authorities. At length it surrendered to Shalmaneser, King of Assyria. But under Assyrian, Chaldean, and Persian domination it retained a kind of independence for its internal affairs, and under the Persians reached its highest prosperity. Through the Middle Ages little is heard of it, except that it was taken by the Crusaders. The present town of Saida has 10,000 inhabitants, of whom 7,000 are Mohammedans. The town was stormed by the allies under Napier in 1840.

**Siedlee, or Kielce**, a town of Poland; capital of a government of the same name; in the present Republic of Poland; 53 miles E. of Warsaw, 69 miles N. of Lubin. It is in the center of a farming community, and exports large quantities of grain, and has considerable note for its bread. The town was the headquarters of the Russian army under Nicholas I. for a long time during the Polish uprising of 1831, and in the World War it was occupied by the Germans on Aug. 12, 1915. Pop. (Est.) 24,000, about two-thirds of whom are Jews.

**Siege, State of.** The "state of siege" as defined by continental jurists is a condition of things in which civil law is suspended or made subordinate to military law.

**Siege Gun**, a cannon sufficiently light to be conveniently transported, and throwing projectiles adapted for breaching fortifications in sieges.

**Siemens, Sir Charles William**, a German engineer; born in Hanover, April 4, 1823. The great works of Siemens Brothers at Charlton, West Woolwich, for the manufacture of submarine electric telegraph cables, were established in 1858; and the great steel works at Landore, Swansea, in 1868. He labored mainly in two distinct fields, the applications of heat and the applications of electricity, and won a great reputation

in both. He was knighted, April 1883, in recognition of his services, which had been previously recognized by numerous scientific societies, and by the Universities of Oxford, Glasgow, Dublin, and Wurzburg. He died in London, Nov. 19, 1883.

**Siemens, Werner von**, a German engineer and electrician; born in Leuthe, Hanover, Dec. 13, 1816. He early showed scientific tastes, and in 1841 took out his first patent for galvanic silver and gold plating. He was of peculiar service in developing the telegraphic system in Prussia, and discovered in this connection the valuable insulating property of gutta-percha for underground and submarine cables. In 1849 he left the army, and shortly after the service of the State altogether, and devoted his energies to the construction of telegraphic and electrical apparatus of all kinds. Besides devising numerous useful forms of galvanometers and other electrical instruments of precision, Werner Siemens was one of the discoverers of the principle of the self-acting dynamo. In 1886 he gave 500,000 marks for the founding of an imperial institute of technology and physics; and in 1888 he was ennobled. He died Dec. 6, 1892.

**Sienkiewicz, Henry**, a Polish author; born in Lithuania in 1845. He is the author of many historical novels, including "Quo Vadis." D., 1916.

**Sierra Leone**, a British colony on the W. coast of Africa, between French Guinea and Liberia; area, 4,000 square miles; pop. (1921) 85,163.

**Sierra Madre ("Main Chain")**, a general name for the mountains that in Mexico stretch N. from about Guadalajara to Arizona, forming the W. wall of the plateau, and separating Chihuahua from the maritime States of Sinaloa and Sonora. Along the E. foothills of the range, in Northwest Chihuahua, the country is very fertile. The so-called Sierra Madre plateau, on the United States frontier, is a continuation of the Chihuahua plateau. The name has often been more widely extended, however, to include the central and E. ranges of the Cordilleras.

**Sierra Nevada**, a mountain range of California, extending N. and S. along the E. boundary of the State.

It consists of an aggregate of ranges, on an average some 70 miles wide, with numerous peaks reaching an elevation of 10,000 and 15,000 feet. Gold mining, timber cutting, and sheep rearing are important industries in these ranges.

**Siesta**, the name given to the practice indulged in by the Spaniards, and the inhabitants of hot climates generally, of sleeping two or three hours in the middle of the day, when the heat is too oppressive to admit of their going from home.

**Sieyes, Emmanuel Joseph**, better known as the Abbe Sieyes, a French revolutionist; born in Frejus, France, May 3, 1748, and pursued his studies for the Church at Paris. During the Reign of Terror he withdrew into the country, but after Robespierre's downfall he returned to the convention and took an active part in affairs. In 1799, on his return from a mission to Berlin, by which he secured the neutrality of Prussia, he became a member of the directory. He subsequently suppressed the Jacobin Club, and was active in bringing about the overthrow of the directory and the substitution of the consular government by the revolution of the 18th Brumaire, the new constitution being devised by him. Sieyes soon found his speculations completely overmatched by Bonaparte's practical energy, and though a consul provisionally, he saw it desirable to terminate his political career. He retired with the title of count, and obtained grants of land and property to the value of at least \$250,000. He was exiled at the restoration, but returned on the July revolution of 1830, and died in Paris, June 20, 1836.

**Sigel, Franz**, an American military officer; born in Sinsheim, Baden, Nov. 18, 1824. He came to the United States in 1852, and when the Civil War broke out, organized a regiment and went to the front, where he served with unusual distinction, being promoted Major-General. Subsequently he settled in New York city, where he entered politics; was made collector of internal revenue in May, 1871; register of the city in October, 1871, and pension agent in 1886; later was editor and publisher of the "New York Monthly." Died Aug. 21, 1902.

**Sighing**, a respiratory act, often prompted by mental impressions of conscious or unconscious kind, which is commenced by a prolonged effort of inspiration, in which the diaphragm descends. The expiratory act which follows, and which constitutes the "sigh," is caused by the recoil of the chest walls and lungs, and by the action of the abdominal muscles. Sighing illustrates simple respiration as modified by mental conditions.

**Sight.** See EYE.

**Sigismund, Emperor of Germany and King of Hungary and Bohemia**, second son of the Emperor Charles IV.; born in 1361. On the death of his father, in 1378, he became Margrave of Brandenburg. He married, in 1386, Maria, daughter of Ludwig Louis, King of Hungary, and was crowned king the same year. He soon after extended his dominions by the conquest of Wallachia. His queen dying in 1392, his claim to the crown of Hungary was contested by Ladislaus V., King of Poland, but unsuccessfully; and the frequent conspiracies formed against Sigismund by the nobles made him suspicious and cruel. In 1410 he was chosen emperor by one party of the electors, Jobst, Marquis of Moravia, being chosen by another party, and Wenceslaus, who had been deposed, still retaining the title of emperor. At the same period there were also three rival Popes.

But the death of Jobst and the acquiescence of Wenceslaus left Sigismund without a rival in the following year. He was crowned at Aix-la-Chapelle in November, 1414, and went thence to the great Council of Constance. The Bohemian reformer, John Huss, had come to Constance under a safe conduct of the emperor; but he was nevertheless burnt, as was also his disciple, Jerome of Prague. By the death of his brother, Wenceslaus, in 1419, he succeeded to the crown of Bohemia. In 1431, Sigismund was crowned King of Italy at Milan; and in 1433, Emperor of Rome by Eugenius IV. He died Dec. 9, 1437.

**Sigismund III.**, surnamed De Vasa; born in 1566, was son of John III., King of Sweden, and of Catharine, the daughter of Sigismund I. He was elected King of Poland in 1587, and succeeded to the crown of Sweden

in 1594. Being a Catholic, his uncle, Charles, Duke of Sudermania, easily undermined his authority in Sweden, and he lost that kingdom in 1604. In 1610 he succeeded in placing his son, Vladislaus, on the throne of Russia, but was afterward obliged to succumb. He died in Warsaw in 1632.

**Sign**, in astronomy, a portion of the ecliptic or zodiac, containing 30 degrees, or a 12th part of the complete circle. The first commences at the point of the equator through which the sun passes at the time of the vernal equinox; and they are counted onward, proceeding from W. to E., according to the annual course of the sun, all round the circle. The names of the 12 signs, in the order in which they follow each other, are as follows: Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpio, Sagittarius, Capricornus, Aquarius, Pisces.

**Signal Corps**, in the United States army, a body of men specially trained in the methods of conveying information. The means employed include the telephone, telegraph, balloons, sight and sound demonstrations, and other methods of transmitting intelligence. The development of radio has added a powerful arm.

**Signals**, the means by which communications are made to greater distances than can be reached by the human voice. To the eye these are conveyed by flags, lights, etc., and to the ear by guns, steam-whistles, fog-horns, etc. The most complete systems of signaling are those devised to enable ships some distance apart to communicate with each other. Of these the most important ones in the United States navy are the international code, the secret naval code, the wig-wag system, the Ardois night signal code, system of wireless telegraphy and microphonic submarine signals.

**Signals, Railroad.** At night colored lights are used, and during the day colored flags are displayed to convey information. Red always signifies danger and is a signal to stop. Green signifies caution, and is the signal to go slow. White signifies safety, and is the signal to go ahead. Blue is a signal seldom used, and is placed on a car or engine to forbid its being moved, as in the case of an accident.

Sometimes torpedoes are placed on the track when lights are not available. Torpedoes have the same meaning as red lights or flags. Colored fuses are also placed on the track, and have the same meaning as colored lights. Torpedoes and fuses are unseen and unheard by the passengers of a train. Lantern signals are the most common in use on all railroads, but are most generally used by freight crews.

**Signature**, in music, in writing music in any key with sharps or flats, the sharps and flats belonging to the key, instead of being prefixed to each note as required, are placed together immediately after the clef on the degrees of the staff to which they belong; and this collection of sharps or flats is called the signature. In printing, a letter or figure at the bottom of the first page of each sheet, to denote the order of the sheet and to facilitate the arrangement of them for binding.

**Signboard**, a board on which a man sets out his occupation or gives notice of articles for sale. Signboards were known to both Greeks and Romans. There are allusions to them in classic writers; and specimens have been found at Pompeii and Herculaneum, sometimes painted, but oftener carved.

**Signet**, a seal, especially the seal used for the sign manual of a sovereign.

**Signorelli, Luca** (called also, from his birthplace, Luca di Cortona), an Italian painter; born in Cortona, Italy, about 1441, and studied under Piero della Francesca at Arezzo. He began to distinguish himself about 1472, and painted till 1512, or perhaps later. He was the first to apply anatomical knowledge to painting, and thus became the precursor of Michael Angelo. His greatest works are a series of magnificent frescoes in the Cathedral of Orvieto. He died in Cortona, 1523.

**Sigourney, Lydia (Huntley)**, an American author; born in Norwich, Conn., Sept. 1, 1791. In her "Letters of Life," published (1866) posthumously, she enumerates 46 distinct works wholly or partially from her pen, besides over 2,000 articles in prose and verse, contributed by her to nearly 300 periodicals. She died in Hartford, Conn., June 10, 1865.

**Sigsbee, Charles Dwight**, an American naval officer; born in Albany, N. Y., Jan. 16, 1845; was graduated at the United States Naval Academy in 1863; served in the Gulf blockading squadron during the latter part of the Civil War; and participated in the battle of Mobile Bay. After the war he commanded a Coast Survey vessel, and served for several years in the hydrographic office of the Navy Department at Washington. He invented a deep-sea sounding apparatus. As captain he was assigned to the command of the battleship "Maine" in 1897. He showed great coolness at the time of its destruction in Havana harbor, and the testimony before the Court of Inquiry proved that he had been extremely watchful and had maintained the most perfect order in all the appointments of the vessel and the strictest discipline on the part of the crew. During the Spanish-American War he commanded the auxiliary cruiser "St. Paul," which rendered excellent service as a naval scout. The deepest valley in the Gulf of Mexico is named "Sigsbee's Deep," after Captain Sigsbee, and the scientific name of *Sigsbeia murrhina* is given to one of the rarest species of deep-sea fauna. It was Sigsbee, too, who discovered near the Morro light, many beautiful specimens of the pentacrin, or sea lilies, and who, while in command of the "Blake," placed at the disposal of scientific investigators the first extensive collection of this ancient genus. In recognition of his work to promote deep-sea exploration Emperor William I. conferred on him the decoration of the Red Eagle of Prussia. In 1900-3 he was chief intelligence officer of the navy; Aug. 11, 1903, was promoted to Rear-Admiral; and Jan. 16, 1907, was retired. Wrote "Deep-Sea Sounding and Dredging." Died, 1923.

**Sikhs**, a religious sect in Hindustan, which worships one only and invisible God. Its founder was Nanak Shah, born in 1469 in the province of Lahore. He labored to lead the people to a practical religion, to a pure worship of God and love to mankind. He died about 1540. Of his successors, Arjun-mal gave stability and unity to the religion by publishing Nanak's writings in the *Adi-Granth*,

the first sacred book of the Sikhs. The real founder of the Sikh state was Govind Singh or Singh, the 10th ruler from Nanak. He abolished the system of castes and gave all men equal rights. His followers received the title of Sinhs or lions. Govind Singh wrote the Dasema Padshah ke Granth, or book of the 10th prince, which, besides treating of religious subjects, contained the history of the author's exploits. The Sikhs hold it in equal veneration with the Adi-Granth. Govind Singh died in 1708, and the Sikhs gradually yielded to the superior power of the Mohammedans. A small number of the Sikhs escaped to inaccessible mountains, and preserved the doctrines of their fathers and an inextinguishable hatred toward the Mohammedans. After Nadir Shah's return to Persia they left the mountains and subdued all Lahore. The Sikhs then broke up into a number of independent communities, each governed by a sirdar; but in 1792 Runjeet Singh established himself as despotic ruler of the Sikhs, with the title of Maharajah. The territory of the Sikhs comprehended the whole Punjab, part of Multan, and most of the country between the Jumna and Sutlej; total area, 69,000 square miles. After Runjeet Singh's death in 1839 a period of anarchy followed. A treaty was signed in 1846 by which Great Britain held the city of Lahore, and a British resident took supervision of the government. In 1848 a general revolt broke out, and in 1849 the Sikh dominion was proclaimed at an end, and the Punjab was annexed to the British empire in India.

**Silene**, in botany, the catchfly; many species are cultivated as ornamental plants in gardens.

**Silenus**, in mythology, a primitive woodland deity of Asia Minor, whom men try to catch when in a drunken sleep, in order to compel him to prophesy and sing.

**Silhouette**, a profile or outline representation of an object filled in with black. The first notice of the modern practice of the art was in regard to portraits made by Elizabeth Pyberg, who cut the profiles of the English sovereigns, William and Mary, out of black paper, 1699.

**Silica**, oxide of silicon. It enters largely into the composition of agate, chalcedony, flint, opal, sandstone, felspar, and a vast number of other minerals. In a perfectly pure state it is quite transparent and colorless. Its hardness is next to that of the precious stones. The industrial applications of silica are very numerous. Glass and pottery are compounds of silica with various metallic oxides. It is extensively used in metallurgical operations as a flux for effecting the decomposition of ores by the formation of a light glassy slag which floats on the top of the molten metal, carrying with it the impurities in the mineral.

**Silicon**, in chemistry, one of the non-metallic elements, the base of silica, discovered by Berzelius in 1823. It was at first supposed to be a metal, and received the name of silicium; but is now considered to be a non-metallic element. It is the most abundant solid element in nature.



COMMON SILKWORM.

a, larva full grown; b, larva, seripsing; c, cocoon; d, chrysalis; e, female moth; f, male moth.

**Silk**, the peculiar glossy thread spun by the caterpillars or larvæ of species of moths, and a well-known kind of fabric manufactured from it.



In the manufacture of silk fabrics France has held, since 1750, the leading place in Europe, Lyons being the chief seat of the trade. The cultivation and production of silk was commenced in the United States at a very early period. In 1734 eight pounds of silk cocoons raised in Georgia were taken to England by Governor Oglethorpe. Later, a court dress was made for Queen Caroline of silk made from American cocoons. Nearly a century afterward the first silk made by machinery in the United States was manufactured at Mansfield, Conn. (1829). Silk cultivation is now a firmly established industry in California and several other States. The U. S. census on Manufactures in 1914 reported 902 plants engaged in the fabrication of silk goods, employing \$210,072,000 capital and 108,170 wage-earners, paying \$144,442,000 for raw material and \$47,108,000 in wages, and yielding an output of a combined value of \$254,011,000. In the year ended June 30, 1927, the United States imported silk goods to the value of \$441,245,492, and exported domestic manufactures to the value of \$15,297,829.

**Sill, John Mahelm Berry**, an American diplomatist; born in Black Rock, N. Y., Nov. 23, 1831; was graduated at the Michigan State Normal School in 1854; taught there as professor in 1854-1863 and as principal in 1886-1894; was twice principal of the Detroit public schools; member of the State Board of Regents of the University of Michigan in 1867-1870; and United States minister to Korea in 1894-1897. He died in Detroit, Mich., April 6, 1901.

**Silliman, Benjamin**, an American scientist; born in North Stratford, Conn., Aug. 8, 1779, was graduated at Yale College in 1796 and admitted to the bar in 1802. At the solicitation of President Dwight, of Yale, he abandoned law to devote himself to science, and in 1802 was chosen Professor of Chemistry and Natural History at Yale. In 1807 wrote the earliest authentic account of a fall of a meteor in America. In 1811 he began a series of experiments with the compound blow pipe and obtained for the first time in the United States the metals sodium and potas-

sium. He discovered the fusion of the carbons in the voltaic arc in 1822; was one of the corporate members named by Congress for the formation of the National Academy of Sciences in 1863. In 1818 he founded the "American Journal of Science." He died in New Haven, Conn., Nov. 24, 1864.

**Silliman Benjamin**, an American chemist; son of the preceding; born in New Haven, Conn., Dec. 4, 1816; was graduated at Yale University in 1837, and immediately became an assistant to his father, then Professor of Chemistry at Yale. At the foundation of the Sheffield Scientific School at Yale, in 1847, he was made Professor of Chemistry in the School of Applied Chemistry; delivered the first series of lectures on agricultural chemistry ever given in the United States, and in 1869 became one of the State chemists of Connecticut. He was one of the original members of the National Academy of Sciences in 1863. He died in New Haven, Conn., Jan. 14, 1885.

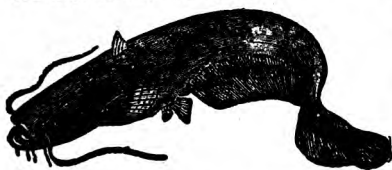
**Silliman, Benjamin Douglas**, an American lawyer; born in Newport, R. I., Sept. 14, 1805; was graduated at Yale University in 1824 and admitted to the bar in 1829. He began his political career as a member of the Assembly from Brooklyn, N. Y., in 1838, and three years later became prominent in Whig politics. He was appointed United States District Attorney for the Eastern District of New York in 1864; was a member of the convention which revised the New York State constitution in 1872; and was defeated as Republican candidate for attorney-general of New York in 1873. He died in Brooklyn, N. Y., Jan. 24, 1901.

**Silliman, Reuben Daniel**, an American lawyer; born in Hudson, Wis., May 17, 1871; was graduated at the law department of the University of Michigan in 1894; and admitted to the bar the same year. He practised law in Duluth, Minn., in 1894-1898, and in Honolulu in 1898-1899; was appointed judge of the Circuit Court of the 1st Circuit in the Hawaiian Islands, in March, 1900, by President Dole of the Republic of Hawaii; and to the same office by President McKinley, in June, 1900.

**Siloam**, or **Siloah**, a pool in Jerusalem, fed by the waters of the Gihon and forming part of the ancient water-supply system of the city. In 1880 the famous "Siloam inscription" was discovered in the aqueduct. It is the oldest Hebrew inscription known.

**Silotvaar**, an explosive, invented by the Russian engineer, Rucktschell, in 1886. As compared with ordinary gunpowder, its penetrating power, when used for cartridges, is stated to be 10 times greater. It emits no smoke or heat, and the discharge is unaccompanied by any report.

**Silurian System**, in geology, a term implying that the rocks so described were well developed in the country of the old Silures.



SILURUS.

**Siluridae**, in zoölogy, a family of malecopterygious fishes, the type of which is the genus *Silurus*, comprising species of large size. The genus *Pimelodus* contains the cat fishes of the United States, of which there are about 30 species. The cat fish of the Great Lakes, is from two to four feet long, and attains the weight of 30 pounds.

**Silvanus**, in Roman mythology, a deity among the Romans, who had the care of fields and cattle and presided over boundaries. He was usually represented as old, and bearing a cypress plucked up by the roots; and the legend of Apollo and Cyparissus was transferred to him. The usual offering to Silvanus was milk.

**Silvas**, or **Selvas**, a name given to the immense wooded plains of the Central Amazon, the area of which is estimated at from 750,000 to 1,000,000 square miles. Being low, they are flooded for a fifth part of their extent by the annual rise of the Amazon and its tributaries.

**Silver**, a precious metal. It appears to have been known almost as early as gold, and, without doubt, for the same reason, because it occurs very frequently in a state of purity in the earth and requires but an ordinary heat for its fusion. Pure silver is of a fine white color. It is softer than copper but harder than gold.

In the calendar year 1929 the total silver production of the United States was valued at \$32,541,000, Utah leading with a production valued at \$10,631,000, Montana second with \$6,755,000, and Idaho third with a total of \$5,016,000. Mexico is the only country in the world whose output of silver exceeds that of the United States.

**Silver Age**, the second mythological period in the history of the world, under the care of Jupiter. It succeeded the golden age and was characterized by voluptuousness. The phrase is also applied to a period of Roman literature succeeding the most brilliant period, and extending from about A. D. 14 to A. D. 180.

**Silver Certificate**, a certificate of deposit issued by the United States treasury for a certain number of silver dollars payable to the bearer on demand. It circulates as money.

**Silver Fir**, in botany, the *Abies pectinata*. It is named from its silvery-white bark; native of Central Europe, where it sometimes reaches 100 feet high.

**Silver Fish**, a fish of the size of a small carp, having a white color striped with silvery lines. It is a variety of the gold fish.

**Silver Fox**, in zoölogy, a variety of the Virginian fox. When adult, the fur is of a deep glossy black (whence it is also called the black fox), with a silvery grizzle on the forehead, and on the flanks passing upward to the rump. It is extremely rare, and the fur is very valuable.

**Simbirsk**, an eastern government of Russia; area, 19,110 square miles. It consists in general of an extensive fertile plain watered by the Volga and its affluents. Agriculture and cattle-breeding are the leading industries. The principal crops are grain, hemp, flax, hay, and tobacco. Minerals are unimportant. There is an abundance of fish in the rivers and numerous

small lakes. Pop. (1922) Est. 1,986,440. SIMBIRSK, the capital, stands on a lofty bank of the Volga, 448 miles E. S. E. of Moscow. Pop. 55,200.

**Simcoe**, a lake in the province of Ontario, Canada. It is about 30 miles long, and 18 miles broad, situated between Lake Ontario and the arm of Lake Huron called Georgian Bay, into which it discharges its waters through Lake Couchiching and the Severn.

**Simeon**, in Scripture, the second son of Jacob and Leah; born about 1755 B. C. When he and his brethren went into Egypt to buy corn, his brother Joseph insisted on Benjamin, the youngest brother, being brought to him, and detained Simeon as a hostage for his forthcoming. He gave his name to one of the Twelve Tribes, which dwelt to the N. of the territory occupied by the tribe of Judah.

**Simeon, Charles**, an English preacher; was born in Reading, Berkshire, Sept. 24, 1759; was educated at Eton and King's College, Cambridge; took orders; and immediately after was appointed Perpetual Curate of Trinity Church, Cambridge, an office which he held till the close of his life, Nov. 13, 1836.

**Simile**, in rhetoric, a figure by which two things are considered with regard to a third that is common to both.

**Simmons, Franklin**, an American sculptor; born in Webster, Me., Jan. 11, 1839; first came into prominence in 1865-1866 when, at Washington, D. C., he produced several life-size bronze medallions of the members of the cabinet and prominent army and navy officers. In 1868 he went to Rome, Italy. He died Dec. 8, 1913.

**Simms, William Gilmore**, an American author; born in Charleston, S. C., April 17, 1806. He died in Charleston, June 11, 1870.

**Simon, Jules Francois**, a French statesman; born in Lorient, Morbihan, Brittany, Dec. 27, 1814; was a disciple of Victor Cousin, the great French philosopher, and when 25 years of age succeeded him in the chair of philosophy at the Sorbonne. After the revolution in 1848 he was elected to the assembly from the Cotes-du-Nord. In March, 1849, he

was elected to the Council of State. In 1863 he was elected to the Corps Legislatif, where he served till the fall of the empire, when he was placed with Thiers and Gambetta at the head of the provisional government, whose affairs he administered during the siege. From the conclusion of peace in 1871 till the fall of Thiers he was prominent in the Assembly at Bordeaux and at Versailles, and in 1875 was elected a life senator. He died in Paris, France, June 8, 1896;

**Simonides**, a Greek lyric poet; born in the island of Ceos, 556 B. C. He lived at Athens during the reign of Hipparchus and spent his last years at the court of Hieron of Syracuse. Only fragments of his poems are extant. Simonides made poetry his profession, and is said to have been the first poet who wrote for pay. He died 467 B. C.

**Simon, Richard**, the father of Biblical criticism; born in Dieppe, France, May 13, 1638. He entered the Congregation of the Oratory in 1659, but soon after withdrew, to return in the latter part of 1662. He was sent first to lecture on philosophy in the college of Juilly, but was afterward appointed to catalogue the Oriental MSS. in the library of the Order of Paris. The scandal occasioned by the appearance of his "Critical History of the Old Testament" led to his again withdrawing from the Oratory and retiring to Belleville as curé. In 1682 he resigned his parish and lived in retirement. Died in Dieppe, April 11, 1712.

**Simonds, Frederic William**, an American geologist; born in Charlestown, Mass., July 3, 1853; was graduated at Cornell University in 1875; was instructor of Geology and Palaeontology there in 1875-1877. He held the professorship of botany, geology, and zoology at the University of North Carolina 1877-1881; and that of geology and biology at the University of Arkansas in 1887-1890; and accepted the chair of geology at the University of Texas in 1895.

**Simonton, Charles H.**, an American jurist; born in Charleston, S. C., July 11, 1829; was graduated at the South Carolina College at the head of his class. He then studied law and

## Simony

practised in his native city; was a member of the Legislature of South Carolina in 1858-1886, excepting the periods of the Civil War and reconstruction. He joined the Confederate army in 1861; was captain of the Washington Light Infantry, and afterward colonel of the 25th South Carolina Volunteers. During the latter months of the war he was a prisoner at Fort Delaware. In 1886-1893 he was United States district judge of South Carolina. He died in 1904.

**Simony** (so called from its resemblance to the sin of Simon Magus) in English law, an offense consisting in the presentation to an ecclesiastical benefice for a reward.

**Simoom**, a noxious hot wind which occurs in most countries situated at no great distance from sandy deserts, and which always blows from that quarter in which the desert is situated. The approach of the simoom is indicated by terrible appearances. The E. horizon is pervaded by a dull yellow hue; a thick sulphurous exhalation rises from the ground, which is first hurried round in rapid gyrations, and then ascends into the air covering the whole heavens. Hissing and crackling sounds are heard; and a hot current of air rushes over the ground. There is generally a considerable quantity of fine sand in the hot air, and the wind affects the human body very powerfully, often producing great feebleness and sometimes even death.

**Simplon Tunnel**, a tunnel through the Alps, designed to give France and Switzerland direct communication by rail with Milan, the greatest distributing point in Italian trade. Among Italians it is believed that the tunnel will double the commerce of Genoa and make that city, instead of Marseilles, the first among the Mediterranean ports. Work was begun on the tunnel on Nov. 13, 1898. It will be the longest tunnel in the world, 12¼ miles. When completed, it will be the third one connecting Italy with outlying countries by direct rail. The Simplon tunnel begins in Switzerland near the little town of Brig, in the valley of the Rhone, Canton Wallis, and ends in the valley of the Diveria, on the Italian side near Isella. It E-71

## Simpson

is perfectly straight, except for a small curve at the entrance and exit. The boring was completed Feb. 24, 1905, and the road opened to traffic Apr. 2, notwithstanding unexpected engineering difficulties, floods of hot and cold springs, quicksands, etc. The cost, borne jointly by the Italian and Swiss governments, amounted to \$15,000,000.

**Simpson, Edward**, an American naval officer; born in New York city, March 3, 1824; took part in the Mexican and Civil Wars; and became a rear-admiral in 1884. He died in Washington, D. C., March 2, 1888.

**Simpson, Sir James Young**, a British physician; born in Bathgate, Linlithgowshire, June 7, 1811. At the age of 15 he proceeded to Edinburgh University, and in 1830 was licensed by the Royal College of Surgeons. In 1832 he graduated as M. D., and became assistant to Professor John Thomson. He was shortly afterward elected one of the presidents of the Royal Medical Society, and in 1835 he published a paper on diseases of the placenta, which was translated into different European languages. In 1839 he was appointed to the chair of midwifery in the University of Edinburgh. His first paper on chloroform was read before the Medico-Chirurgical Society of Edinburgh on March 10, 1847, and it soon came into general use. He died in Edinburgh, May 6, 1870.

**Simpson, Matthew**, an American clergyman; born in Cadiz, O., June 20, 1810; tutor in Madison (now Allegheny) College in his 19th year; was graduated in medicine in 1833, and soon after entered the ministry in Pittsburg Conference (M. E.); elected vice-president and professor in Allegheny College, 1837; elected president of Indiana Asbury University, 1839; elected editor of the "Western Christian Advocate" 1848. In 1852 he was elected bishop. During the Civil War he delivered numerous addresses in behalf of the Union and the freedmen, and officiated at the funeral of President Lincoln. In 1874 he visited Mexico, and later presided at the conferences in Europe; and in 1881 visited Europe for the third time as delegate to the first Methodist Ecumenical Council and de-

livered the opening address. He died in Philadelphia, Pa., June 18, 1884.

**Sims, James Marion**, an American surgeon; born in Lancaster, S. C., Jan. 25, 1813; studied medicine at Charleston and Philadelphia, and having begun practice had his attention specially drawn to some of the special diseases of women, for which he gained a distinguished name, introducing new instruments and operations. He was instrumental in getting a woman's hospital established in New York. Practised for some years in Europe. He died in New York city, Nov. 13, 1883.

**Sims, William Sowden**, an American naval officer; born in Port Hope, Canada, Oct. 15, 1858, was graduated at the U. S. Naval Academy in 1880; by regular promotion reached the rank of Vice-Admiral in 1917; was long noted as an authority on target practice; commanded the Atlantic Torpedo Flotilla in 1913-15; and after the entrance of the United States into the World War was given command of the destroyer flotillas in European waters, operating in conjunction with similar vessels of the Entente Allies.

**Sims, Winfield Scott**, an American inventor; born in New York city, April 6, 1844; was graduated at the Newark (N. J.) High School in 1861, and served during the Civil War in the 37th New Jersey regiment. Subsequently he turned his attention to the investigation of electric apparatus; constructed an electric motor by means of which he was enabled to propel a 16-foot boat at the rate of 4 miles an hour; was the first to apply electricity to the propulsion and guidance of movable torpedoes, and later devised a dynamite boat with a speed of 18 miles an hour, to be used in the harbor and coast defense service.

**Simson, Robert**, a Scotch mathematician; born in Kerton Hall, Ayrshire, Oct. 14, 1687; was educated at the University of Glasgow. In 1711 he was appointed Professor of Mathematics in Glasgow, and he occupied this chair for half a century. One of the first subjects to which he turned his attention was the restoration of Euclid's lost treatise on "Porisms." It is Simson's greatest achievement that he elucidated the nature of the

ancient porisms, though his restoration of them is not complete. He died Oct. 1, 1768.

**Sinai**, a mountain, or mountain range in Arabia Petrea, in the peninsula, formed by the two arms of the Red Sea, and rendered memorable as the spot where, according to the Pentateuch, the law was given to Israel through Moses. This mountain range is divisible into three groups: a N. W., reaching in Mount Serbal, an elevation of 6,340 feet; an E. and central, attaining in Jebel Katherin, a height of 8,160 feet; and a S. E., whose highest peak, Um Shaumer, is the culminating point of the whole Sinaitic range.

**Sinaloa**, a state of Mexico, bordering on the bay of California; area, 33,671 sq. m.; pop (1921 Est.) 341,265.

**Sinclair, May**, English novelist; b. Rock Ferry, Cheshire, 1867. Her first poems were published in 1887 and "Audrey Craven," her first novel, in 1897. "The Divine Fire," published in 1904, achieved a remarkable success.

**Sinclair, Upton**, novelist; b. Baltimore, Sept. 20, 1878. Graduate of New York City College, of Columbia Univ., published "Springtime and Harvest" (1901) followed by other works including "The Jungle" (1905), depicting Chicago stock yard conditions; it created a phenomenal sensation.

**Si-ngan-fu** or **Sian**, the capital of the province of Shen-si, China. Pop. estimated 1,000,000.

**Singapore**, the capital of the insular dependency of the same name, in the British Straits Settlements. It is a picturesque well-built town, with fine public buildings and all kinds of appliances in the nature of public works. It possesses a governor's residence, St. Andrew's Protestant cathedral, a Roman Catholic cathedral, Mohammedan mosques, Hindu temples, Chinese joss-houses, Raffles museum, the supreme law-courts, postoffice, hospitals, jail, barracks, and fine botanical and zoological gardens. It is defended by numerous batteries and forts, and is a naval coaling station and depot. The docks, stores, and dwelling houses extend for 6 miles or more along the sea front. The harbor is spacious and safe and remark-



ably easy of access. The death rate is high, yet the climate, in spite of Singapore being situated little more than 1° N. of the equator, is uniform and agreeable, the nights being particularly cool and refreshing. The thermometer ranges between 67° and 94° F. The rainfall varies from 65.6 to 92.2 inches in the year. It was made the capital of the Straits Settlements in 1830, superseding Penang. Pop. (1927 Est.) 538,077.

**Singing**, the production of music by the human voice. The principal requisites in singing are a good voice, a correct ear, and a sound rudimentary knowledge of music. By careful practice, purity of tone and flexibility of execution may be attained, and the sweetness, brilliancy, and compass of the voice increased in a marked degree. See VOICE.

**Single Standard**, a phrase used in the discussion of bimetalism to indicate a single standard of value; that is, gold alone or silver alone.

**Single Tax**, the principle held by Henry George and his followers, that the value which the growth and improvement of the community attaches to land should be taken for the use of the community, so that no tax need be levied on the product of labor, but all public revenues for national, state, county, and municipal purposes could be raised by a single tax on land values, irrespective of improvement. The originator urged the adoption of his theory on two grounds, "governmental expediency" and "social justice."

**Sinn Féin** (*Gaelic*, "ourselves alone;" pronounced *shin fain*), the name of an organization, first given to a weekly newspaper founded in Dublin by Arthur Griffin, an Irish editor and author, in 1899; later adopted by the political group known as the United Irishmen, and applied to the serious uprising in Southern Ireland in April, 1916.

**Sinologue**, one versed in Chinese language, history, and literature.

**Sinon**, the Greek who, according to the legend, threw himself into the hands of the Trojans and persuaded them to admit the wooden horse.

**Sinople**, red ferruginous quartz, of a blood or brownish red color, some-

times with a tinge of yellow. It occurs in small crystals, resembling some varieties of jasper.

**Sioux City**, city and capital of Woodbury county, Ia.; on the Missouri river and the Union Pacific and other railroads; 97 miles N. of Council Bluffs; is a great railroad center; in a very rich farming section; has large general jobbing, pork and beef packing, and live-stock market interests; manufactures linseed oil, beef and pork products, flour, oatmeal, and brick; and contains Morningside College, Medical College, normal school, Federal Building, St. Joseph's and Samaritan hospitals, Homes for the Friendless, Boys and Girls, and Babies, and the Floyd Monument. Pop. (1930) 79,183.

**Sioux**, or **Dakotah Indians**, a once powerful family of North American Indians. Their number is estimated at 25,000; they are well advanced in civilization and are increasing in population. In 1862, the Sioux under the lead of Little Crow, a noted chief, in consequence of the annuity not having been paid to their satisfaction, waged a war on the whites of Minnesota; and so well concerted were their schemes that no less than 640 men, women, and children, and 94 soldiers, were killed before the massacre was stayed. They are now divided into small branches, and located on several reservations, chiefly in North and South Dakota and Minnesota.

**Sioux Falls**, city and capital of Minnehaha county, S. D.; on the Big Sioux river and several railroads; 90 miles N. of Sioux City, Ia.; is the metropolis of the State and the distributing point for farming implements and mercantile supplies; derives immense water-power from the falls of the river; has important manufactures and granite and other stone works; and contains Sioux Falls University (Bapt.) State Inst. for Deaf Mutes, State Penitentiary, State Normal School, and the seat of a Protestant Episcopal and a Roman Catholic bishop. Pop. (1930) 33,362.

**Sir**, a term of complimentary address applied commonly, without regard to position or standing, to men of any degree; a general title by

which a person addresses the man to whom he is speaking.

**Siren**, in acoustics, an instrument for determining the number of vibrations corresponding to a note of any given pitch.

In classical mythology, certain melodious divinities who dwelt on the shores of Sicily and so charmed passing mariners by the sweetness of their song that they forgot their homes and remained there till they perished of hunger. According to one legend they threw themselves into the sea, from rage and despair, on hearing the more melodious song of Orpheus. Originally there were only two sirens; but their number was afterward increased to three, and their names are given with great variety.

In zoölogy, mud eels: a genus of Urodela or of Perennibranchiate Ichthyodea, constituting the family Sirenidae. They are eel-like amphibians, with two anterior feet and permanent branchiae, and range from Texas to Carolina. There are three species. *S. lacertina* is the mud eel.

**Sirenia**, an order of aquatic Mammalia, including the manatee, dugong, rytina, etc.; allied to the Cetacea, with which they were formerly and are still occasionally classed. The body is long, compact, and cylindrical, narrowing toward the tail, which is set horizontally and terminates either in forked flukes or a flat fibrous expansion. Hind limbs and sacrum absent; anterior limbs converted into paddles. Snout fleshy and well developed; nostrils on upper surface; lips fleshy, the upper lip usually with a moustache. The skin is rough and sparsely hairy, or smooth like that of the whale. The sirenia pass their life in the water, living chiefly in shallow bays, estuaries, lagoons, and rivers, never straying far from shore, and feeding solely on aquatic vegetation.

**Sirex**, in entomology, the typical tailed wasp. It is, however, an aberrant sawfly, the apparent sting being a projecting ovipositor. It is not uncommon in pine and fir woods.

**Sirius**, in astronomy, the dog star, by far the brightest fixed star in the sky. It is alpha Canis Major, situated a little below Orion, and is mythologically regarded as one of the hounds

held in leash by Orion, Procyon in Canis Minor being the other. Ptolemy, in the 2d century, ranked Sirius among red stars; now it is white, and is a very brilliant object, its light being 324 times as great as that of a star of the sixth magnitude. It is about 1,000,000 times as far from us as the sun, and its mass is about 20 times as great. Some irregular movements of Sirius led to the belief that a heavenly body existed near enough to produce a perturbation, and a son of Alvan Clark, of Boston, discovered, on Jan. 31, 1862, what appears to be a planet revolving around Sirius as its sun, it is thought in about 49 years.

**Sirocco**, a hot wind storm. Most of the hot winds of the Old World are modified forms of the simoom. The sirocco originates in the Sahara and travels N. to the Mediterranean and Southern Europe, but it is not so deadly as the prototype. It brings with it great quantities of the desert sand, and the air becomes so dense at times that the sun is obscured as if by fog. While it remains on the African mainland it is characterized by a very marked dryness, as there are no extensive water surfaces to supply it with moisture. As soon, however, as it is launched over the Mediterranean it begins to take up copious draughts, so that when it reaches Malta, Sicily, and the S. shores of Europe as a wind from between S. E. and S. W., it has undergone a change from a hot, dry wind to a hot, damp wind. During its prevalence iron rusts, clothes spoil with mildew, meat turns putrid, grapes and green leaves wither, wine will not fine, and paint will not dry. Sicily experiences the sirocco about a dozen times a year, but it is not so frequently met with in other parts of Europe.

**Sisal**, or **Grass Hemp**, a species of agave yielding a valuable fiber, a native of Mexico, Honduras, Central America, and specially cultivated in Yucatan. It is grown on stony ground, and the leaves, from which the fiber is prepared, are from two to three feet long. The pulp is cleaned away from each side of the leaf and the remaining fiber is then washed and sundried.

**Sisterhoods**, originally, societies or communities of women living together under a religious rule, binding upon all, and with a common object for their united life. In modern usage, organizations of women connected with religious bodies for charitable work, especially in the Roman Catholic, Methodist Episcopal, and Protestant Episcopal churches.

**Sistova**, a town of Bulgaria, on the Danube, opposite Simnitsa, 38 miles S. W. of Rustchuk; has 19 mosques and manufactures of wine, leather, and wool. In 1791 a treaty of peace between Turkey and Austria was signed here, and in 1877, during the Russo-Turkish war, part of the Russian army crossed the Danube here and occupied the town. Pop. about 14,000.

**Sitka, or New Archangel**, a port of entry and seat of administration of Alaska Territory; on the W. coast of the island of Sitka or Baranof; about 1,300 miles N. of San Francisco. It is located amid beautiful scenery, and has a wide and deep harbor, somewhat difficult of entrance. Its bay, dotted with evergreen islands, opens out into the Pacific, and within view are river, forests, and snow-covered mountains. Ferns and mosses are found in great variety. It is said that on the small island of Sitka there grow more than 300 kinds of wild flowers. The town contains a hospital, museum, an industrial and public school, the Greek Church of St. Michael, built in 1816, and in which the Russians still maintain the national religion, and a Presbyterian mission where about 200 boys and girls receive an industrial training in connection with the ordinary branches of an English education. When Alaska was transferred to the United States in 1867, Sitka contained only about 100 log huts. Pop. (1920) 1,175.

**Sitting Bull**, a chief of the Sioux Indians; born about 1837; was regarded as a great "medicine man" by his tribe; and was an obdurate foe of the whites. He was conspicuous in the Sioux massacre of 1862; was constantly on the war path for 14 years; was a leader in the Indian outbreaks of 1876; and was in command at the battle of the Little Big Horn in which

General Custer and his entire force were killed. With his band he escaped into Canada, but continued even there to incite rebellion among the Sioux. In 1880, receiving the promise of pardon, he returned to Dakota and surrendered to General Miles. He again incited the Indians to renewed outbreaks. His arrest was ordered and the Indian police were detailed on this duty. In attempting to resist them, he was killed Dec. 15, 1890.

**Sium**, in botany, the water parsnip; a genus of Umbelliferae, family Amminidae; poisonous herbs with small white flowers.

**Siva** (a Sanskrit word, literally meaning "happy," "auspicious"), the name of the third god of the Hindu Trimurti or triad, in which he represents the characters both of Destroyer and Reproducer. The name Siva, as that of a deity, is unknown in the Vedic hymns, but established as such in the epic poems, Puranas and Tantras. The Saivas, or worshippers of Siva, assign to him the first place in the Trimurti; and to them he is not only the chief deity, but the deity which comprises in itself all other deities. The symbol of Siva is the Linga, emblematic of creation, which follows destruction. From each of his numerous attributes or characteristics he derives a name or epithet. He has five heads (hence his name Panchanana, "the five-faced"); three eyes (hence his name, Trincetra, "three-eyed"), one of which is on his forehead, and indicates his power of contemplation; and in the middle of his forehead he wears a crescent. His hair is clotted together and brought over the head so as to project like a horn from the forehead.

**Sivas**, a town of Asiatic Turkey, capital of a vilayet of the same name, at an elevation of 4,400 feet, near the Kizil-Irmak, 410 miles E. S. E. of Constantinople. It is in a very fertile region; is on the road from Bagdad; and, having ready access to the Black Sea, carries on a large commerce. In the Middle Ages it was a place of large importance, under the Byzantines, Seljuks, and Ottoman Turks, and has fine relics of medieval Mohammedan art. Pop. (Est.) 68,000, one-fifth Armenians.

**Six Companies**, an organization of Chinamen with headquarters in San Francisco, Cal., partly benevolent and partly commercial. Originally, they guaranteed to send back, dead or alive, the body of every Chinaman who sailed from home to this country, but they now ship back to China the bones only of those whose families desire those relics buried in the sacred earth of the Flowery Kingdom. They began in 1850 and 1851 hiring men in China to meet the demand for labor in California. The business grew and other Chinese firms went into it. Then the agents of all these firms found it necessary to unite for self-protection. There were six of these agencies, and they called themselves the Six Companies. They are secret societies only to the initiated; to the rest they do not differ widely in their main design from the societies which white men established in California during the gold fever, when people from every State in the Union had their headquarters there. The Six Companies have added arbitration bureaus and banking operations to their original scheme.

**Six-principle Baptists**, an American sect of Baptists, claiming descent from the original settlement of Roger Williams at Providence, R. I., in 1630. The six principles from which they derive their name, are repentance for dead works, faith toward God, the doctrine of baptism, laying on of hands, resurrection of the dead, and eternal judgment.

**Sixtus**, the name of several popes:

Sixtus I., successor of Alexander I. in 119; martyred in 127.

Sixtus II., the successor of Stephen I. He is stated to have been an Athenian and pagan philosopher before his conversion to Christianity. He was one of those who suffered martyrdom in the persecution of the Christians by Valerianus in 258.

Sixtus III., successor of Celestin I. in 432. He endeavored to reconcile the disputes existing in the Eastern Church, particularly in the case of Cyril, Bishop of Alexandria, and John of Antioch. He was also a munificent patron of learning, and is stated to have left 5,000 silver marks to be expended in the embellishment of ecclesiastical structures. He died in 440.

Sixtus IV.; born in Savona, July 22, 1414; was the son of a fisherman on the coast of Genoa, but became a monk of the order of Cordeliers. He became general of his order, and was honored with the cardinalship by Paul II., whom he succeeded in 1471. He died Aug. 13, 1484.

Sixtus V., (Felice Peretti), Pope; born near Montalto, Dec. 13, 1521. He entered the convent of the Cordeliers at Ascoli. Pius V., who had been his pupil, had him chosen general of the Cordeliers, named him his confessor, and, in 1570, created him cardinal. He was not in favor with Gregory XIII., and it is said that in his retirement he feigned great feebleness, walked leaning on a stick, his head declined, and his voice broken. These signs of old age vanished with surprising suddenness the moment of his election as successor to Gregory in April, 1585. He threw away his staff, lifted up his head, and made the place ring with his loud Te Deum. His first care was to repress brigandage, and make Rome and the States of the Church safe from the violence which had long prevailed. Before the end of 1585 Sixtus published a bull of excommunication against Henry of Navarre and the Prince of Conde. During the five years of his pontificate Sixtus formed and executed many designs for the improvement and adornment of Rome; completed a great aqueduct for the supply of Rome with water; rebuilt the library of the Vatican, and established the celebrated printing office in connection with it; had new editions of the "Septuagint" and the "Vulgate" published at his own expense, and yet left the treasury rich. He died Aug. 27, 1590.

**Size**, a kind of glue or adhesive varnish used in many industrial pursuits.

**Skager Rack**, a broad arm of the German Ocean, which washes Norway on the N., Jutland on the S., and Sweden on the E., where it communicates with the Cattegat; length, W. S. W. to E. N. E., about 150 miles; breadth, 80 miles. A part of it was the scene of the great naval battle between the British and German fleets, designated as the Battle of Jutland Bank, on May 31-June 1, 1916.

**Skagway**, a town on Chilkat Inlet, Alaska; at the head of Lynn canal,

## Skate

and at the entrance to the White Pass. It is a result of expeditions to the Yukon gold fields in 1897, when the White Pass began to be used as a means of reaching the Klondike and its vicinity. In 1899 the first college in Alaska was opened here. Skagway is a miner's town, and a landing place for steamers. Its name is derived from the Indian name of a river which flows into the sea near the town.

**Skate**, in ichthyology, the popular name of any individual of a section of



COMMON SKATE.

the genus *Raia*, differing from the rays proper in having a long pointed snout.

**Skeat, Rev. Walter William**, an English philologist; born in 1835. Since 1878 he is professor of Anglo-Saxon at Cambridge. Is known through his early English publications.

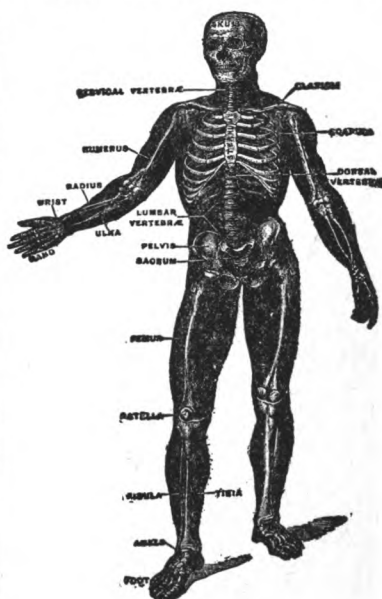
**Skeleton**, a general term for the more or less hard parts of animals, whether forming an internal supporting framework—an endoskeleton, or an external exoskeleton, often useful as armor. The term includes many different kinds of structure and material.

**Skene, William Forbes**, a Scotch historian; born in Inverie, in Kincardineshire, June 7, 1809. He was educated at Edinburgh High School; in Germany; and at the universities of

## Skerrett

St. Andrews and Edinburgh, afterward in 1831 becoming a writer to the Signet in Edinburgh. In 1881 he succeeded Hill Burton as historiographer for Scotland. He died Aug. 29, 1892.

**Skerrett, Joseph Salathiel**, an American naval officer; born in Chillicothe, O., Jan. 18, 1833; was appointed to the United States navy in 1848 and later assigned to duty with the



HUMAN SKELETON.

African squadron engaged in the extermination of the slave trade. His principal service during the Civil War was in June, 1864, when, as commander of the gunboat "Aroostook," he successfully attacked the Confederate fortifications at the mouth of the Brazos river, Texas. Subsequently he commanded the apprentice ship "Portsmouth"; was on duty at the Naval Academy, and when at Honolulu prevented the outbreak of the threatened revolution of 1873. While commanding the "Richmond," of the



Asiatic station, in 1881-1884, he visited Apia, Samoa, where he settled the trouble in which the United States consul had become involved. In 1884-1886 he was at the Naval Asylum in Philadelphia; in 1892-1893 was commander of the Pacific station; and in 1893 became commander of the Asiatic Squadron. He died in Washington, D. C., Dec. 31, 1896.

**Skerryvore Lighthouse**, a light-house built on a rock forming part of an extensive reef lying about 12 miles S. W. from the wild Isle of Tyree on the W. coast of Scotland.

**Skew Bridge**, in engineering, a bridge in which the passages under and over the arch intersect each other obliquely.

**Ski**, large snow-shoes worn in Norway and other extreme N. countries. They are light in their construction and are about eight feet long. Without these it would be impossible for the peasants to get about during the months of deep snow, when ordinary walking is impossible. The children wear them and acquire great proficiency in their use, and every village has its competition for speed, style, and leaping. On the first Sunday in February, when the snow is usually at its best condition, an annual "ski" competition is held at Holmenkollen and famous races and "jumps" are made. A leap of 120 feet has been recorded. The ski has become popular in Canada and in some parts of the United States, especially in the Northwestern States, where there is a large Scandinavian population. Here "ski running" has become a prominent feature of winter sport. There have been a number of ski tournaments in Minnesota, and the increasing number of ski runners in the United States has warranted the organization of a National Ski Association.

**Skiagraph**. See RADIOGRAPH.

**Skiascope**, an apparatus for making observations of the influence of the Roentgen rays on a fluorescent screen.

**Skid**, or **Skeed**, an iron shoe or socket for checking the speed of a carriage when going down hill; it is attached to the carriage by a chain of such length as will permit the wheel to ride on it instead of revolving. In

the United States, a lengthy square piece of timber along which something is rolled or by which it is supported. In nautical language, any beam or timber used as a support for some heavy body, to prevent its weight falling on a weak part of the vessel's structure. Also timbers that are laid crosswise in a ship's waist, to sustain the larger boats, the launch in particular.

**Skimmer**, or **Scissors Bill** (Rhynchops), a genus of long-winged sea birds belonging to the gull family (Laridae). Their most distinctive feature is the long, thin bill with the lower half longer than the upper. There are only three known species, occurring in America, Asia, and Africa. Darwin describes the American skimmers, or, as they are also called, shear-waters, as skimming along the surface of the water, generally in small flocks, ploughing up small fish with their projecting lower mandible, and securing them with the upper half of their scissors-like bills.

**Skin**, that membrane of variable thickness which covers the whole body externally and extends inward into all the natural openings, where it changes its properties, becoming soft and moist, and hence known as mucous membrane. The skin is generally described as composed of three layers: the cuticle, the rete mucosum, and the cutis vera, the last being the most internal. The cutis (dermis), or true skin, consists of two layers, of which the deeper is called the corium, and the more superficial, the papillary layer. The corium is composed of numerous fibers closely interlaced, and forming a smooth surface for the support of the papillary layer. It varies in thickness, being, as a general rule, thick on the exposed parts and thin on the protected. The papillary layer is soft, and formed by numerous papillae which cover its whole surface. It contains the expansions of the sensitive nerves. The rete mucosum (mucous network) lies immediately over the cutis, and in some measure diminishes the inequalities of its surface, being thicker between the papillae and thinner on their summit. It is composed of minute, uncleated cells, and is almost pulpy in consistence. It is very slightly developed in the white races, but is very distinct and thick

in those that are darker, the cells, which are filled with a pigment, being that which gives the dark color to their skin. The cuticle, scarfskin, or epidermis is a disorganized scaly substance, serving to protect from injury the more delicate cutis. It is thickest on the most exposed parts; and on the palms of the hands and soles of the feet it consists of several layers. The skin performs various important functions. It is the seat of common sensation, and is furnished with numerous pores or openings which give passage to the sweat and other exhalations. It is in this way the great regulator of the heat of the body.

**Skin Grafting**, in surgery, a method for the treatment of large ulcerated surfaces by the transplantation of small pieces of skin from another part of the body, or from the body of another person.

**Skink**, or **Scink**, in zoölogy, the popular name for *Scincus officinalis*, or any individual of the family Scincidae, considered by some naturalists as forming a connecting link between the lizards and the serpents, since it contains individuals which are lacertiform, others having rudimentary limbs, and others again serpentiform in appearance, the external limbs being entirely absent.

**Skinner, William**, an American manufacturer; born in London, England, in 1824; came to the United States in 1845 and engaged in the silk business in Northampton, Mass. In 1848 he became a partner in a silk manufacturing firm, and in 1851 started a factory of his own in Williamsburg, Mass., which was entirely destroyed in the great Mill river flood in 1874. In the same year he started again in Holyoke. He died in Holyoke, Mass., Feb. 28, 1902.

**Skipper**, in zoölogy, the common name of the lepidopterous insects composing the family Hesperidae. Skippers fly with a jerking motion, and hence their name. They are generally of a rich brown, marked with yellow spots.

**Skirmish**, a slight fight in war, between small parties and less than a battle; a loose, desultory kind of engagement in presence of two armies, between small detachments sent out for the purpose either of drawing on a

battle or of concealing by their fire the movements of the troops in the rear.

**Skirret**, the *Sium Sisarum*, a perennial plant of the natural order Umbellifere, a native of China and Japan, but which has long been cultivated in gardens in Europe for the sake of its roots, which are tuberous and clustered, sometimes six inches long, and of the thickness of the finger. They are sweet, succulent, and nutritious, with a somewhat aromatic flavor, and when boiled are a very agreeable article of food.

**Skobeleff, Mikhail Dmitri-vitch**, a Russian general; born in 1843. He received a military education and saw early service against the Polish revolutionists in 1863. He took part in the Khiva expedition in 1873; commanded the cavalry at the capture of Khokand in 1875; and in the Russo-Turkish War of 1877-78, stormed Lovatz, occupied Plevna, and with other generals surrounded the Turkish forces in the Shipka Pass, Jan. 9, 1878, and forced them to surrender. In 1880-81 he led the expedition into Turkestan, and suppressed the Tekkes by the storming of Geok-Tepe. In 1881 he was made governor of Minsk. He died July 8, 1882.

**Skole**, a town of Czecho-Slovakia, on Opor river, in a valley at the foot of the Carpathian mountains, 58 miles S. of Lemberg. It is an important railroad station on the line between Lemberg and Munkacs, has glass-works, and, in the vicinity, extensive iron and tin mines. It was in the World War zone. Pop. 2,500.

**Skull**. The skeleton of the head of a vertebrate animal; it is divided into two parts, the cranium and the face. In human anatomy it is customary to describe the former as consisting of eight and the latter 14 bones; the eight cranial bones, which constitute the brain case, being the occipital, two parietal, frontal, two temporal sphenoid and ethmoid; while the 14 facial bones, which surround the cavities of the mouth and nose and complete the orbits or cavities for the eyes, are the two nasal, two superior maxillary, two lachrymal, two malar, two palate, two inferior turbinated, vomer, and inferior maxillary. The bones of the ear, the teeth, and the Wormian bones are

not included in this enumeration. The lower jaw articulates with the temporal bones by means of a diarthrodial joint, but all the others are joined by sutures. On the base of the cranium the occipital and sphenoid bones articulate by means of a plate of cartilage (synchondrosis) in young subjects; in adults this becomes bony union. Sutures are named from the bones between which they are found, but to those around the parietal bones special names are given — e. g., interparietal or sagittal; occipito-parietal or lambdoid; fronto-parietal or coronal; parieto-temporal or squamous. During adult life many of the sutures close by bony union and disappear, but both

seldom one inch in diameter. The closure of a suture stops the growth of the skull along that line, and in order to compensate for this defect an increase of growth may occur at right angles to the close suture and thus irregularities of form may result. Irregular forms may be produced artificially by pressure applied early in life. This is best seen among certain American tribes who compress their children's heads by means of boards and bandages. The bones of the skull are pierced by holes (foramina), and similar holes are found in relation to the adjacent margins of bones. Most of these foramina are situated in the base or floor of the skull, and are for the ingress of arteries and the exit of veins in cranial nerves. The largest of these foramina — the foramen magnum — is found in the occipital bone. It is situated immediately above the ring of the atlas vertebra, and through it the continuity between the brain and spinal cord is established, and further, it transmits the vertebral arteries which supply blood to the brain. Compared with the skulls of animals, the form of the human skull is modified (1) by the proportionately large size of the brain and the consequent expansion of the bones which surround it; (2) by the smaller size of the face, especially of the jaws, so that the face of man, instead of projecting in front of, is under the forepart of the cranium; (3) by the erect attitude, which places the base of the skull at a considerable angle with the vertebral column, and, in consequence of a development backward from its point of articulation with the vertebrae, the skull is nearly balanced on the summit of the vertebral column. Hence the orbits look forward and the nostrils look downward. The development of the skull is a subject of great interest, not only in itself, but as throwing light on many points which the study of the adult skull would fail to explain.

The fact that concussion of the brain scarcely ever proves fatal, unless there is also fracture of the skull, affords the most distinct evidence that the skull is constructed in such a manner that so long as it maintains its integrity it is able to protect its contents from serious lesion. This mar-



HUMAN SKULL, SIDE VIEW.

1, frontal bone; 2, parietal bone; 3, sphenoid bone; 4, temporal bone; 5, process of the cheek bone; 6, superior maxilla; 7, nasal bone; 8, lachrymal bone; 9, ethmoid bone; 10, inferior maxilla; 11, chin; 12, anterior nasal aperture; 13, optic foramen; 14, mastoid process of the temporal bone; 15, coronal suture; 16, squamous suture; 17, superior ledge of the eye-orbit.

the age at which this occurs and the order of its occurrence are subject to variation. Wormian bones are irregular ossifications found in relation to the sutures of cranial bones, but seldom seen in relation to the bones of the face. They are most frequent in relation to the lambdoid suture, and

## Skunk

velous protective power is due to its rounded shape, whereby its strength is increased, and in consequence of which blows tend to glide off it without doing material damage. Moreover, the curved lines or ridges which may be traced round the skull tend to strengthen it. The weakest part of the skull is at the base. Hence, notwithstanding its removal from exposure to direct injury and the protection afforded by the soft parts, fracture takes place more frequently at the base than at any other part of the skull, fracture often taking place here even when the skull was not broken at the part struck. There are two points in the architecture of the bones of the face which deserve special notice—viz. (1) the great strength of the nasal arch; and (2) the immobility of the upper jaw, which is fixed by three buttresses—the nasal, the zygomatic, and the pterygoid.

**Skunk**, the Mephitis, a genus of small carnivorous quadrupeds of the weasel family. All the species are American, and, as they differ little in habit, the common skunk may be taken as typical of the whole genus. It is an animal about the size of a cat; has fur of a glossy black; on the forehead is a patch of white diverging into two lines which extend the whole length of the back and meet again in the beautiful bushy tail. The under surface of the tail is also white, and is usually carried erect or laid over against the body. The common skunk is found throughout North America, but is most abundant in the Hudson Bay region. It is notorious for the powerful and offensive odor which it emits. So penetrating is the evil odor of this fluid that it is perceptible a mile off; and so persistent is it that clothes defiled by it can only be purified by prolonged hanging in smoke. Skunks usually raise from 6 to 10 young in a season. If taken early they are easily tamed and make pretty pets, for they are cleanly in habit and rarely emit their offensive secretion save when provoked.

**Skunkbill, Skunkhead, or Skunktop**, the name given several species of ducks in the United States, as, the surf duck, and the Labrador duck.

## Skye Terrier

**Skunk Cabbage** (*Symplocarpus foetidus*), a plant of the natural order Araceae or arums, so named from its smell.

**Skye**, after Lewis, the largest of the Scotch islands, and the most N. of the Inner Hebrides, is included in Inverness-shire; area, 547 square miles. It is very irregular in shape, and is so cut up by inlets that no part of it is more than 4 miles from the sea. Its extreme length from Aird Point to Sleat Point is 47 miles; its greatest breadth, from Portree to Copnahow Head, 22 miles. Skye is a wild, high-land country, and its rocky mountains and pale headlands are shrouded in the mists of the Atlantic.

Toward the S. W., bounding Loch Scavaig, are the romantic Cuchullin Hills, jagged and precipitous, attaining their greatest height of 3,183 feet in Scurra-Gilleann. The outlying Blabhein (pronounced Blaavinn), 3,200 feet high, rises to a narrow ledge, overhanging a lofty precipice on either side. In the bleak promontory of Trotternish rises the Quiraing (1,774 feet), perhaps the most singular sight in Skye. It is a natural basaltic cathedral, formed by huge fluted columns of basalt and rugged pyramidal masses, in the midst of which stands a truncated rocky hill. This hill rises abruptly; its sides are worn by rivulets and ribbed with fissures, and at its top is a spacious verdant plateau, 100 paces by 60.

The N. part of Skye is still spoken of as "MacLeod's country," and the S. part is the country of the Macdonalds.

The inhabitants are mainly Celtic, and universally speak Gaelic, though the use of English is gradually increasing. Since 1851 the population has decreased, chiefly by emigration, to the extent of one-fifth. The chief families in Skye are the Macdonalds of Sleat, who trace their descent to the Lords of the Isles, and the Macleods, originally Norsemen, who still occupy old Devegann Castle. The island is historically interesting as the home of Flora Macdonald and the refuge of Prince Charles.

**Skye Terrier**, a breed of dogs supposed to be the outcome of a cross between the native dog of Skye and a Maltese terrier.

**Skylark**, one of the most popular European cage birds from the variety and power, rather than the quality, of its song, and the ease with which its health is preserved in captivity. It is an inhabitant of all the countries of Europe, many migrating to the S. in winter.

**Sky-rocket**, a firework composed of a mixture of niter, sulphur and charcoal tightly rammed in a stout paper case, which ascends when the compound is ignited at the lower end. A stick is attached to one side of the case to steady the flight.

**Sky-scraper**, a name given to the very tall buildings to be seen in the larger American cities, particularly New York and Chicago. They are all strong structures supported by steel frames resting on great cantilevers sunk down to bed rock, some 70 feet below the street level.

**Sladen, Douglas Brooke Wheelton**, an English poet; born in London, Feb. 5, 1856.

**Slafter, Edmund Farwell**, an American historian; born in Norwich, Vt., May 30, 1816; was graduated at Dartmouth College in 1840; took a course at Andover Theological Seminary; was ordained in the Protestant Episcopal Church in 1845; and held various pastorates. In 1877 he turned his attention to the study of history. His publications include "Sir William Alexander and American Colonization," "Voyages of the Northmen to America," etc. Died Sept. 22, 1906.

**Slag**, in metallurgy, vitreous mineral matter removed in the reduction of metals; the scoria from a smelting furnace. It is used for making cement and artificial stone, in the manufacture of alum and crown glass, and is cast into slabs for pavements, garden rollers, etc.

**Slaked Lime**, calcium hydrate; produced by sprinkling calcium oxide with water. When a mass of lime is moistened with water, an energetic combination takes place, accompanied occasionally with slight explosions, due to the sudden evolution of steam; the mass splits in all directions, and finally crumbles to a soft, white, bulky powder. It is chiefly employed in the preparation of mortar for building purposes.

**Slander**, defamation; a false tale or report maliciously uttered, and tending to injure the reputation of another.

**Slang**, a low and inelegant, but often expressive, form of colloquial language. Many words which originate as slang finally take their places in the language of literature and speech.

**Slate**, a very remarkable form of clay rock, frequently fossiliferous and not confined to one geological period. Consisting essentially of clay, the particles of slate are so mechanically arranged that the rock splits with perfect facility into almost indefinitely thin layers in one direction only, and in all others either breaks with a jagged edge, or in well defined joints at some distance from each other. Mineralogically slate is nothing more than a pure clay; nor does there seem any reason to suppose that any approach is made in it toward crystalline structure. Practically slate is very valuable, owing to its peculiar facility of splitting and the perfectly smooth natural face which it presents. Its hardness and compactness preserve it from all weathering by mere exposure, though, when ground down, it easily passes back into fine clay. For a long time slate was used almost exclusively for roofing. Slabs are now used in house fittings; as in strong rooms, powder magazines, larders, partitions, baths, stables, floors, drains, etc.

**Slater, John Fox**, an American philanthropist; born in Slaterville, R. I., March 4, 1815; engaged in business and so enlarged his operations that in 1872 he became sole owner of the mill property he was conducting. He also made profitable investments, and in a few years acquired a large fortune. He was early interested in the cause of education, and gave liberally to the establishment of the Norwich Free Academy. He died in Norwich, Conn., May 7, 1884.

**Slater, Samuel**, an American manufacturer; born in Belper, England, June 9, 1768; was apprenticed to Strutt, Arkwright's partner in cotton spinning, in 1782; came to the United States to promote cotton manufactures in 1789; settled in Pawtucket, R. I., in 1790; and there built and started the first cotton mill in the



United States, with 72 spindles and three carding machines. Afterward he built cotton mills at what is now Webster, Mass., and erected woolen mills at the same place in 1815-1816. He died in Webster, Mass., April 21, 1835.

**Slater Fund**, a gift of \$1,000,000 made by John Fox Slater, of Norwich, Conn., in 1882, to a board of trustees, for the purpose of "uplifting the lately emancipated population of the Southern States and their posterity." For this patriotic and munificent gift the thanks of Congress were voted, and a medal was presented. Neither principal nor income is expended for land or buildings. Education in industries and the preparation of teachers are promoted in institutions believed to be on a permanent basis.

**Slaughter Houses**, premises in which cattle are slaughtered and prepared for human food. The largest slaughter houses in the world are in Chicago, Ill., and Kansas City, Mo.

**Slavery**, the state or condition of a slave, bondage. Slavery in the full sense of the term implies that the slave is the property or at the disposal of another, who has a right to employ or treat him as he pleases; but the system has been subjected to innumerable limitations and modifications. Slavery probably arose at an early period of the world's history out of the accident of capture in war.

**Slavic Nations**, a group that forms a large and important branch of the Aryan family, numbering about 125,000,000, and occupying nearly a third of Europe. Of their history prior to the 6th century of our era little is known with certainty. No evidence exists even in tradition as to the time at which the Slavs entered Europe, but their wave of immigration appears to have been later than the Celtic, Græco-Italic, and Teutonic waves. The E. shores of the Baltic, in the neighborhood of which are still found the dwindling remains of the Lettic races, are claimed as the early homes of some Slavic tribes, while others are supposed to have dwelt near the N. shores of the Black Sea, or roamed over the vast tract vaguely designated as Sarmatia, stretching from the Caspian toward the mouth

of the Vistula. From the 5th century B. C. they are supposed to have existed in Europe for nearly 1,000 years without materially affecting its history. At length a S. movement seems to have brought them into contact with the Roman empire, and in the 6th century of our era they appear in the works of the historians Jordanes and Procopius as Sclavini or Sclabenoï; names from which comes the superfluous c in the word "Slavonic." The origin of the name Slav is uncertain. Ranked at first among the barbaric foes of the Empire, the S. and W. Slavs gradually became civilized. The N. Slavs were not all equally fortunate, many of their tribes being gradually driven out or absorbed without ever attaining political importance. But in the N. E. a combination of Scandinavian rulers and Slav subjects laid the foundations of what became the Russian empire.

**Slavonia**, since Dec., 1918, a State of Kingdom of Serbs, Croats and Slovenes, (Jugo-Slavia); bounded N. and E. by Hungary, W. by Croatia, and S. by Greece; area, of Croatia and Slavonia, 16,421 square miles; pop. (Est.) 2,750,000, of whom about 600,000 belong to the Illyrio-Servian branch of the Slavs, and chiefly to the Greek Church. Principal towns, Eszék (the capital), Peterwardin, Carlovitz, Semlin, Mitrovitz, Rozenberg, Tretschin and Brod.

**Sleep**, that natural state or condition of unconsciousness in animals which alternates with activity.

**Sleeper**, in shipbuilding, a fore-and-aft floor timber in a ship's bottom. Also a knee-piece connecting the transom and after-timbers to strengthen the counter. Similar timbers strengthen the bows of whalers. In ordnance, the undermost timbers of a gun or mortar platform, or, generally, of any frame work. In carpentry, one of the set of timbers supporting the lower floor of the building. The sleepers in a wooden frame, rest on the sills. In a brick or stone house they rest on the walls. Also, one of a set of logs or scantlings laid beneath a rough floor, as of a pen, shed, or temporary stable. In railroad building, one of the timbers supporting a railway track. When it is longitudinal with the track it is called a stringer or sill; when it is

transverse, a sleeper or tie. In weaving the upper threading point of a draw-loom heddle.

**Sleeping Sickness**, an African disease caused by the sting of the TSETSE FLY, introducing trypanosomata microbes in the human system.

**Sleepy Hollow**, a narrow valley half a mile N. of Tarrytown, N. Y. At this place Pocantico creek flows into the Hudson river. This beautiful valley was made famous by Washington Irving as the scene of one of his most popular sketches, "The Legend of Sleepy Hollow." The old Dutch Church, and the old mill conspicuous in the "Legend" are still standing, and the quiet and quaint character of the country differs very little from the word pictures given by the author. Irving's grave is in the newer part of the cemetery of the old church.

**Sleighs**, traveling vehicles without wheels, which in some form are in use in all countries where snow lies for any considerable part of the year.

**Slichter, Charles Sumner**, an American educator; born in St. Paul, Minn., April 16, 1864; was graduated at the Northwestern University in 1885. He was Professor of Applied Mathematics at the University of Wisconsin from 1892 and later consulting engineer of the U. S. Geological Survey and special investigator in the U. S. Reclamation Service.

**Slidell, John**, an American statesman; born in New York city, about 1793; was graduated at Columbia University in 1810; studied law, and in 1819 went to New Orleans, where he soon acquired a large practice. He was appointed United States district attorney for Louisiana in 1834; elected to Congress in 1843; made minister to Mexico in 1845 and was in the United States Senate in 1853-1861. In September, 1861, he was appointed a Confederate commissioner to France, and in November set out with his associate, James M. Mason, for Southampton. Both commissioners were seized on the English mail steamer "Trent" by Capt. Charles Wilkes of the United States steamer "San Jacinto," and brought to the United States. He was released and sailed for England in January, 1862. From

England he at once went to Paris, where his mission, which had for its object the recognition of the Confederate States by France, was a failure, but he succeeded in negotiating a large loan and in securing the ship "Stonewall" for the Confederate government. After the war he settled in London, England, where he died July 29, 1871.

**Sliding Scale**, a scale of payments varying under certain conditions, as: (1) A scale for raising or lowering imposts in proportion to the fall or rise in the price of the goods. (2) A scale of prices for manufactured goods, which is regulated by the rise and fall in the price of the raw material. (3) A scale of wages which rises and falls in proportion to the rise or fall in the market value of the goods turned out.



ANCIENT SLING AND SLINGER.

**Sling**, a short leather strap having a string secured to each end, by which a stone is hurled.

In machinery, a device for holding articles securely while being hoisted or lowered.

**Slips, Propagation by**, a mode of propagating plants, which consists in separating a young branch from the parent stock and planting it in the ground. Slips from trees of which the wood is white and light succeed best.

**Sloane, Rush Richard**, an American abolitionist; born in Sandusky, O. He was twice elected probate judge; delegate to the Pittsburg convention which organized the Republican party; for several years a member of the Republican State Committee of Ohio; chairman of the Ohio Republican State Central Committee in 1865-1866; elected mayor of Sandusky in 1878; and prominent in Democratic politics after 1872. He became conspicuous in the abolition movement; and for defending five slaves who had escaped from bondage was arrested under the second Fugitive Slave Act in 1852, being the only person prosecuted under that law.

**Sloane, Thomas O'Connor**, an American scientist; born in New York Nov. 24, 1851; was graduated at St. Francis Xavier's College, New York city, in 1869; and soon afterward became Professor of Natural Sciences in Seton Hall College, South Orange, N. J. He was the inventor of a self-recording photometer, described a new process of determining sulphur in illuminating gas; and was successively the editor of the "Plumber and Sanitary Engineer," the "Scientific American," and the "Youth's Companion."

**Sloane, William Milligan**, an American historian; born in Richmond, O., Nov. 12, 1850; was graduated at Columbia in 1868; studied in Berlin and Leipsic (1872-1876), and during part of that time was private secretary of George Bancroft, then minister at Berlin. He was for several years a professor at Princeton, later Professor of History at Columbia. In 1897 he brought out a very important "Life of Napoleon."

**Sloanea** (named after Sir Hans Sloane, 1660-1753). Tropical American trees, often above 100 feet high, with very hard wood. *S. jamaicensis* is the breakax or ironwood. The fruit of *S. dentata* is eaten.

**Slocum, Henry Warner**, an American military officer; born in

Delphi, Onondaga co., N. Y., Sept. 24, 1827. He was graduated at the United States Military Academy in 1852; resigned his commission in 1856; studied law, and practised in Syracuse, N. Y. He was elected a member of the State Legislature in 1859. When the Civil War broke out he was commissioned a colonel of volunteers in the Union army; was placed in command of a corps on the left wing of General Sherman's army; and took part in the great "March to the Sea," leading the left wing of the army from Atlanta to Savannah. In September, 1865, he resigned from the army; settled in Brooklyn; and resumed the practice of law. He was elected to Congress in 1869 and served till 1873. He died in Brooklyn, N. Y., April 14, 1894.

**Slocum, Joshua**, an American navigator; born in Wilmot township, Annapolis co., Nova Scotia, Feb. 20, 1844; was a sailor from boyhood; studied nautical astronomy and marine architecture. He built a steamer of 90 tons' register in 1897; and the "Spray" of 9 tons' register, in Fairhaven, Mass., in 1892, in which he made a complete voyage around the world alone in 1898.

**Sloe**, or **Slo**, a small, bitter European plum. Found in hedges, coppices, and woods. Called also blackthorn, and, more rarely, blackthorn may. The leaves of the sloe are often used to adulterate tea.

**Sloop**, a fore-and-aft rigged vessel with one mast, like a cutter, but having a jibstay and standing bowsprit, which the cutter has not. Sloop-of-war, formerly vessels carrying from 10 to 18 guns, but since the introduction of steamships the number of guns has ceased to be distinctive, and the term is now seldom used.

**Sloth**, in zoölogy, the popular name for any individual of the Edentate group Tardigrada, from their slow and awkward movements on the ground, owing to the peculiar structure of the wrist and ankle joints. The feet are armed with long claws, and turned toward the body, so that the animal is compelled to rest on the side of the hind foot, while the disproportionate length of the forelimbs causes it to rest also on the elbows.

## Sloth Bear

It shuffles forward, alternately stretching the fore legs and hooking the claws into the ground, or grasping some object to draw itself along. Sloths are natives of South America, nocturnal in habit, and are found in the forests of that region, passing their lives among the branches of trees, on the leaves and young shoots of which they feed. See MEGATHERIUM.



GIANT SLOTH.

**Sloth Bear**, in zoölogy, the Indian bear, found throughout the Peninsula and in Ceylon.

**Slovaks**, the name of the Slavic inhabitants of North Hungary who in the 9th century formed the nucleus of the great Moravian kingdom, but who, after the bloody battle of Presburg (A. D. 907), were gradually subjugated by the Magyars, to whom even yet they entertain no friendly feeling. Their number is reckoned at 3,250,000, of whom 800,000 belong to the Protestant, and the rest to the Catholic Church. The Slovaks, whose character probably comes nearest to that of the old Slavic type, travel in great numbers over Germany and Poland as peddlers. Their language is a dialect of the Bohemian.

**Slow Match**, a match made so as to burn very slowly. The commonest kind of slow match is a piece of slightly twisted hemp rope dipped in a solution of saltpeter, sugar of lead,

etc. Slow matches are chiefly used to fire mines or blasts, the object of using them being to allow the person who fires them to escape to a safe distance before the explosion takes place.

**Sloyd**, the name given to a certain system of manual instruction which obtains popularity in the schools of Finland and Sweden, and which has been largely adopted in other countries, especially in the United States. The word properly denotes work of an artisan kind practised not as a trade or means of livelihood, but in the intervals of other employment. The fundamental idea of the educational sloyd is to utilize this sloyd work in the schools in a disciplinary way as an integral part of general education. To this end the older children, generally boys, are engaged for a certain number of hours a week in making articles of common household use varying from simple objects such as a flower stick or a pen rest to more complicated articles such as a cabinet or small table. These objects are made from drawings or from models, but to exact measurements, and the utmost accuracy and finish are insisted on. The tools employed are the ordinary tools of the carpenter, with certain exceptions, the most important of which is the knife. It is held that work of this kind is valuable as supplementing and correcting the ordinary school education in the three R's.

**Slug**, in zoölogy, naked, air-breathing mollusks, universally distributed, committing great ravages in fields and garden crops in moist weather, but becoming dormant during frosts. The body is generally oval or oblong, elongated, from one to three inches in length; the creeping disk, or sole of the foot, extends the whole length of the animal, but, like snails, slugs frequently raise their heads and move their tentacles in search of objects above them. They often climb trees, and can lower themselves to the ground by the accumulation of mucus at the extremity of the tail hardening into a gelatinous thread.

**Sluice**, in hydraulics, a frame of timber, stone, or other solid substance, serving to retain and raise the water of a river or canal, and when necessary, to give it vent. The word is

## Sluice

also applied to the stream of water issuing through a flood-gate.

**Slur**, in music, the smooth blending of two or more notes not on the same degree; also a curved line placed over or under notes, directing that they are to be played legato.

**Smack**, a small vessel rigged as a cutter, sloop, or yawl, used in the coasting trade and in fishing.

**Smalkaldic Articles**, articles of guarantee drawn up by Luther at Wittenberg in 1536, and subscribed by the theologians present at a meeting of the League in 1537. It was a summary of the religious principles of the League, designed to be presented to the council proclaimed by Pope Paul III.

**Smalkaldic League**, a defensive alliance, formed in 1531, between the whole of Northern Germany, Denmark, Saxony, Wurtemberg, with portions of Bavaria and Switzerland, for the defense of the Protestant religion and the political freedom of its adherents against Charles V. and the Catholic powers. The struggle known as the War of Smalkald commenced in 1546, and was carried on with varying fortune on both sides till the objects of the League were attained in 1552, when Maurice, Elector of Saxony, compelled the Emperor to grant the treaty of Passau, which was ratified in 1555.

**Smalley, George Washburn**, an American journalist; born in Franklin, Mass., June 2, 1833. During the American Civil War, the war between Prussia and Russia, and the Franco-German War, he distinguished himself as war correspondent of the New York "Tribune," and as representative of the same in London (1867-1895) he gained an eminent rank in journalism. He became American correspondent of the London "Times" in 1895. He died April 4, 1916.

**Smallpox**, an eruptive febrile disease, which happily is not now nearly so prevalent as it once was. This disease commonly commences with the usual febrile symptoms; as rigors, pain in the back and loins, great prostration of strength, followed by heat and dryness of the skin. About the third day an eruption of small, hard, red-colored pimples makes its appearance about the

face and neck, and gradually extends over the trunk and extremities. The pimples gradually ripen into pustules, which, on the eighth day, generally begin to break, and crusts or scabs form on these last, falling off in four or five days more. The severity of the disease varies much in different instances, but is almost always in direct relation to the quantity of the eruption. When the pustules are numerous they run together and form an irregular outline; when fewer they are distinct and of a regularly circumscribed circular form; the former being never free from danger, the latter seldom or never dangerous.

Like measles and scarlatina, this disease frequently gives rise to others of a troublesome or dangerous nature; as glandular swellings, abscesses, pleurisy, loss of sight, consumption, etc. Smallpox is the effect of specific contagion communicated by contact or through the air. The parasite of smallpox, a delicate ameboid body with numerous minute spores, was not discovered until 1904 by Dr. Korte. Smallpox rarely attacks an individual more than once.

**Smalt**, in chemistry, a vitreous substance prepared by melting roasted cobalt ore with silica and potash, and grinding the product to a fine powder. It is sometimes called powder blue, and is used to give a blue tinge to writing paper, linen and starch, and not being affected by fire is frequently employed in painting earthenware.

**Smart, Sir George Thomas**, an English musician; born in London, England, May 10, 1776. By industry and careful study he rose to be composer and organist to the Chapel-Royal, St. James's, and directed the music at the coronation of William IV. and Queen Victoria. He was knighted in 1811. Among his pupils were Madame Sontag and Jenny Lind. He died in London, Feb. 23, 1867.

**Smart, Mrs. Helen Hamilton (Gardener)**, an American novelist; born in Winchester, Va., Jan. 21, 1858. She labored for social and ethical reform and for the development of woman. Among her works are: "An Unofficial Patriot," "Historical Sketches of Our Navy," etc.



**Smeaton, John**, an English civil engineer; born in Austhorpe, near Leeds, England, June 8, 1724. In 1751 he invented a machine for measuring a ship's way at sea, and also a new form of compass. In 1753 he was elected a fellow of the Royal Society, and was awarded the Copley medal in 1759. In 1755 he was intrusted with the rebuilding of the Eddystone lighthouse, which was completed in October, 1759. It stood till 1882, when it was replaced by a new structure. Smeaton was subsequently employed on many works of great public utility, including the Forth and Clyde canal and Ramsgate harbor. He also perfected Newcomen's steam engine. He died in Austhorpe Oct. 28, 1792.

**Smell**, in physiology, the power or faculty of perceiving odors. For this purpose the animal is provided with a special nerve called the olfactory nerve, in which alone this faculty resides. In man the filaments of this nerve are distributed in minute arrangements in the mucous membrane covering the interior and upper cavities of the nose. All animals do not perceive the same odors in an equal degree. Carnivorous animals, for instance, have the power of detecting by the smell the special peculiarities of animal matters, and of tracking other animals by the scent, but apparently are not sensible to the odors of plants and flowers; while, on the other hand, herbivorous animals are peculiarly sensitive to the latter and have little sensibility to animal odors.

Man is inferior to many animals in respect to acuteness of smell, but his sphere of susceptibility to various odors is more uniform and extended. The cause of the difference in the effect of different odors is unknown. Great differences in this respect exist among different individuals, many odors which are generally thought agreeable being to some persons intolerable and different persons describe differently the sensations which arise from the same odorous substances. Further, the acuteness of this sense differs greatly in different individuals, and there seems to be in some persons insensibility to certain odors, and in the case of sight to certain colors. Linnæus has divided odors into seven different classes: Aromatic,

as the carnation; fragrant, as the lily; ambrosial, as musk; alliaceous, as garlic; fetid, as the rag-wort, valerian; virulent, as Indian pink; nauseous, as the gourd.

**Smelt**, a small anadromous fish; common on the coasts and in the fresh waters of Northern and Central Europe, and of corresponding American latitudes, from August to May, returning to the sea after it has deposited its eggs. The smelt is one of the most delicate food fishes.

**Smelting**, the act or process of obtaining metal from ore by the combined action of heat, air, and fluxes. In smelting iron the ore is first roasted in a kiln in order to drive off the water, sulphur, and arsenic with which it is more or less combined in its native state, and is then subjected to the heat of a blast furnace along with certain proportions of coke or coal and limestone, varying according to the composition of the ore to be heated and the kind of iron to be made.

**Smilax**, sarsaparilla; the roots of several species or varieties constitute the sarsaparilla of the materia medica. The most valued is that known as Jamaica sarsaparilla. It is not the produce of Jamaica, but of Central America and South America.

**Smiles, Samuel**, British author; born in Haddington, Scotland, Dec. 23, 1812; died Apr. 16, 1904. He was educated as a physician, but became famous as the author of "Self Help;" "Character;" "Thrift;" "Duty;" and other works of industrial tendencies, characterized by sound moral teaching. He died April 16, 1904.

**Smith, Adam**, a Scotch political economist; born in Kirkcaldy, Fife-shire, Scotland, June 5, 1723. He studied at Oxford and was appointed Professor of Moral Philosophy at Glasgow University in 1752. Toward the close of 1763 he accepted an invitation to travel with the Duke of Buccleuch, and having resigned his chair, made a long tour in France, becoming acquainted at Paris with some of the most eminent philosophers and economists. Returning in 1766, he spent the next 10 years in retirement at Kirkcaldy, engaged in the composition of his great work, the "Inquiry into the Nature and Causes of the Wealth of

Nations" (1776). It has a high rank among the successful books of the world—overthrowing the grave errors which it attacked, and establishing their opposite truths. The book may be regarded as the basis of modern political economy. Smith was chosen lord-rector of the University of Glasgow in 1787. He died in Edinburgh, July 17, 1790.

**Smith, Alfred Emanuel**, born December 30, of Alfred Emanuel and Catherine (Mulvehill) Smith, in New York City, and received his early school education in the parochial schools of that city. From his early manhood he has been associated in politics, and for years was a moving factor in the activities of Tammany Hall. He served both the City and the State of New York in important political positions, and in 1919 was elected Governor of the State of New York, an office which he held for four terms: 1919-20, and 1923-28. In 1928 he was nominated by the Democratic Party as their candidate for President of the United States, but, even though he was a popular candidate, he was badly defeated by former Secretary of Commerce Herbert Hoover by an overwhelming majority of 357 electoral votes. During the campaign he attacked the Ku Klux Klan and its activities, the "power trusts" and the present Prohibition conditions. He refused the nomination for Governor of New York State again, and had retired for the present at least from active political life. In 1900 he married Catherine A. Dunn and has three children, Alfred E., Emily, and Catherine.

Mr. Smith published, in 1929, his autobiography, first in serial form through the medium of a weekly magazine, later as a book, the title of which is "Up Till Now." His state papers are collected in a volume entitled "Progressive Democracy" and he is the subject of a critical study by Pringle in "Alfred E. Smith: A Critical Study."

**Smith, Andrew Jackson**, an American military officer; born in Bucks co., Pa., April 28, 1815; was graduated at the United States Military Academy in 1838, and assigned to frontier duty. At the outbreak of the

Civil War he was assigned to the Department of Missouri. Subsequently he was transferred to the Department of the Ohio, and later to the Army of the Tennessee, which he accompanied on the Yazoo river expedition. He was mustered out of the volunteer service in January, 1866, and in July became colonel of the 7th United States Cavalry, but resigned in 1869. On Jan. 22, 1889, was reappointed to the army, and on the same day was placed on the retired list. He died in St. Louis, Mo., Jan. 30, 1897.

**Smith, Buckingham**, an American historian and philologist; born on Cumberland Island, Ga., Oct. 31, 1810. He was secretary of legation at Mexico (1850-1852), and at Madrid (1855-1858). He made an exhaustive study of Mexican history and antiquities, and published many monographs and historical papers. He died in New York, Jan. 5, 1871.

**Smith, Charles Emory**, an American journalist; born in Mansfield, Conn., Feb. 18, 1824; was graduated at Union College in 1861. He was United States minister to Russia in 1890-1892; and postmaster-general 1898-1901, when he resigned to resume the editorship of the Philadelphia "Press." He died in 1908.

**Smith, Charles Ferguson**, an American military officer; born in Philadelphia, Pa., April 24, 1807; was graduated at the United States Military Academy in 1825. He was in active service during the Mexican War, commanding a light battalion, and won distinction for bravery at Palo Alto, Resaca de la Palma, Monterey, Churubusco, etc. At the outbreak of the Civil War he was appointed a Brigadier-General of volunteers; at the head of a division captured the heights commanding the fort at the battle of Fort Donelson in 1862. In March of the same year was promoted Major-General of volunteers. He died in Savannah, Tenn., April 25, 1862.

**Smith, Charles Henry**, pseudonym "Bill Arp," an American humorist; born in Lawrenceville, Ga., June 15, 1826; served in the Confederate army in 1861-1865, becoming major on staff of 3d Georgia Brigade. His literary career began (1861) in a series of letters. Died 1908.

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**Smith, David M.**, an American inventor; born in Hartland, Vt., in 1809; patented a combination lock in 1849 and in 1860 began the manufacture of a spring hook and eye for which he also devised the machinery. Subsequently he took out nearly 60 patents, among which was that for the machinery used in folding newspapers. Died in Springfield, Vt., Nov. 10, 1880.

**Smith, Edmund Kirby**, an American military officer; born in St. Augustine, Fla., May 16, 1824; was graduated at the United States Military Academy in 1845, and appointed a lieutenant of infantry. In the war with Mexico he was twice brevetted for gallantry. In 1861 he was promoted major, but resigned on the secession of Florida and entered the Confederate army. He took part in the battle of Bull Run. In 1864 he defeated General Banks in his Red river campaign. He was president of the Atlantic and Pacific Telegraph Company in 1866-1868; chancellor of the University of Nashville in 1870-1875; and Professor of Mathematics in the University of the South, Sewanee, Tenn., from 1875 till his death there, March 28, 1893.

**Smith, Mrs. Erminnie Adelle (Platt)**, an American ethnologist; born in Marcellus, N. Y., April 26, 1836. When only 16 years old she was graduated from Willard's Troy Seminary. In 1880 the managers of the Smithsonian Institution obtained her services to investigate the history, customs, and lore of the Iroquois Indians. Mrs. Smith joined the tribe, and received the name of Ka-tel-tee-sta-Keost, the English of which is "Beautiful Flower." She continued her Indian studies, and at the time of her death was preparing a dictionary of the Iroquois tongue. She wrote many papers on Indian subjects. She died in Jersey City, N. J., June 9, 1886.

**Smith, Francis Hopkinson**, an American painter, writer and civil engineer; born in Baltimore, Md., Oct. 23, 1838. He was educated as a mechanical engineer; built the government wall around Governor's Island, one at Tompkinsville, S. I., the Race Rock lighthouse off New London, Conn., the foundation for the statue of Liberty Enlightening the World in New York harbor, etc. He won fame

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as a water-color artist and an illustrator and lecturer on art. Among his most popular books are: "Caleb West." He died April 8, 1915.

**Smith, George Otis**, an American geologist; born in Hodgdon, Me., Feb. 22, 1871; joined the United States Geological Survey in 1896; was assistant and full geologist in 1896-1907; then became Director.

**Smith, Gerrit**, an American philanthropist; born in Utica, N. Y., March 6, 1797; was graduated at Hamilton College in 1818. He gave pecuniary aid to John Brown, in whose affair at Harper's Ferry, he, however, it is thought, had no part; was a member of Congress in 1853-1854; with Horace Greeley signed the bail bond of Jefferson Davis in 1867; was an earnest advocate of temperance and a supporter of a number of reforms. He died Dec. 28, 1874.

**Smith, Goldwin**, an English historian; born in Reading, England, Aug. 13, 1823; was educated at Eton and Oxford. As a lecturer he attracted great attention both on account of his strongly democratic views and his striking originality. Having during the American Civil War strongly defended the cause of the North, he was at the close of the war invited to visit the States to deliver a course of lectures, and his visit resulted in his becoming Professor of History at Cornell University, New York. He resigned in 1871, and was appointed member of the senate of the University of Toronto, where he resided till his death, June 7, 1910.

**Smith, Green Clay**, an American politician, military officer, and clergyman; born in Richmond, Ky., July 2, 1832. He served a year in the Mexican War. In 1862 he entered the volunteer service of the Union army, in which he attained the rank of Brigadier-General; was a member of Congress from Kentucky in 1863-1866; governor of Montana Territory in 1866-1869; later a Baptist minister, mostly an evangelist, but in 1895 accepted the pastorate of the Metropolitan Baptist Church, Washington, D. C. In 1876 he was the Prohibition candidate for the presidency of the United States. He died in Washington, D. C., June 29, 1895.

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**Smith, Gustavus Woodson**, an American military officer; born in Scott co., Ky., Jan. 1, 1822; was graduated at the United States Military Academy in 1842. In September, 1846, he was assigned to duty under General Scott in Mexico, as commander of the corps of sappers and miners, and for his services during that war, especially at Vera Cruz, Cerro Gordo, and Contreras, was brevetted 1st lieutenant and captain. In 1861 was commissioned a Major-General in the Confederate army. He was in command at Richmond in 1862; head of the State troops of Georgia in 1864-1865; and after the war engaged in business in Tennessee, Kentucky, and New York. Died in New York city, June 23, 1896.

**Smith, Henry John Stephen**, an Irish mathematician; born in Dublin, Nov. 2, 1826; was educated at Rugby and Balliol College, Oxford, taking a double-first in 1849. In 1861 he became Savilian Professor of Geometry. He was the greatest authority of his day on the theory of numbers, and also wrote on elliptic functions and modern geometry. In 1881 the French Academy offered their "Grand Prix" for a demonstration of certain theorems, ignorant of the fact that they had already been demonstrated 14 years before by Smith, to whom accordingly the prize of 3,000 francs (\$600) was awarded, but not till a month after his death. He died Feb. 3, 1883.

**Smith, Henry Preserved**, an American educator; born in Troy, O., Oct. 23, 1847; was graduated at Amherst College in 1869. He came into special prominence in 1892 when he was accused of heresy and tried by the Cincinnati Presbytery. In 1893, pending the review of his case, he resigned his chair in Lane Seminary. Being convicted by both of these bodies he retired from the Presbyterian Church; was a professor at Amherst College, 1898-1906; chief librarian, Union Theological Seminary, from 1913.

**Smith, Hezekiah Wright**, an American engraver; born in Edinburgh, Scotland, in 1828; came to the United States in 1833 and entered an engraving establishment. In 1850 he settled in Boston, Mass. Among his most important plates are a full-

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length of Daniel Webster; a three-quarter length of Edward Everett; and Gilbert Stuart's head of Washington. Subsequently he removed to New York city and later to Philadelphia. He gave up engraving in 1879.

**Smith, James Argyle**, an American military officer; born July 1, 1831; was graduated at the United States Military Academy in 1853; served in the Confederate army during the Civil War, becoming a Brigadier-General in November, 1863; was elected State Superintendent of Education of Mississippi in 1878 and 1882; engaged in the United States Indian service in 1893-1897; and was afterward marshal of the Mississippi Supreme Court. He died in Jackson, Miss., Dec. 6, 1901.

**Smith, James Francis**, an American military officer; born in San Francisco, Cal., Jan. 28, 1859. In 1898 he was appointed colonel of the 1st California Volunteers and accompanied the first expedition to the Philippines, where he took part in the battle of Malate on July 31, 1898, and in the capture of Manila in August. On April 29, 1899, he was promoted Brigadier-General of volunteers; on July 24 following became military governor of the island of Negros; in 1900 of the Visayas; and was Governor-General of the Philippines, 1906-9.

**Smith, John**, an English adventurer, the founder of Virginia; born in Willoughby, in Lincolnshire, England, in January, 1579.

Smith entered with enthusiasm into the project of colonizing the New World, and with Gosnold, Winkfield, Hunt, and others set out in December, 1606, with a squadron of three small vessels for Virginia, under the authority of a charter granted by James I. Amidst the unhappy dissensions, difficulties, and distress of the first years of the great enterprise, Smith rendered the most important services by his irrepressible hopefulness, practical wisdom, and vigorous government. But for his wisdom and noble exertions the project would probably have been abandoned. He made important geographical explorations and discoveries. In 1607, ascending the Chickahominy, and penetrating into the interior of the country, Smith

and his comrades were captured by the Indians, and he only, by his rare self-possession, escaped with life. He remained a prisoner for some weeks, carefully observed the country, got some knowledge of the language of the natives, and when at last they were going to put him to death he was saved by the affectionate pleading of Pocahontas, the daughter of the chief Powhatan, a girl 10 or 12 years old. He visited Virginia in 1614, was captured by the French in the following year, and on his return to London after three months heard of the arrival of his Indian friend Pocahontas. Smith made known her services, and she was presented to Queen Elizabeth and loaded with marks of honor and gratitude. Smith published in 1608 "A True Relation of such Occurrences and Accidents of Note as hath Happened in Virginia since the First Planting of that Colony." He died in London, June 21, 1631.

**Smith, John Lawrence**, an American chemist; born near Charleston, S. C., Dec. 17, 1818; was educated at the University of Virginia and at the Medical School of South Carolina. Later he was appointed by the State of South Carolina to assay the bullion from the gold fields of Georgia and the Carolinas; investigated meteorological conditions, soils, and modes of cotton culture. He devoted much attention to meteorites, and his collection, which he bequeathed to Harvard, was the finest in the United States. He was a chevalier of the Legion of Honor; president of the American Chemical Society; one of the commissioners to the World's Fair in Paris in 1867; a judge in the Department of Chemical Arts at the Centennial Exposition in Philadelphia in 1876; and author of many valuable reports, scientific and technical papers, etc. He died in Louisville, Ky., Oct. 12, 1883.

**Smith, Joseph**, an American naval officer; born in Boston, Mass., March 30, 1790; was appointed to the United States navy in 1809, and commissioned lieutenant in 1813. He was 1st lieutenant on the brig "Eagle" in the victory on Lake Champlain; served on board the frigate "Constitution" in the Mediterranean in 1815-1817, and in 1843-1845 commanded the Mediterranean squadron. Died in 1877.

"Cumberland" as his flagship. On his return to the United States he was appointed chief of the bureau of yards and docks, which post he filled till 1869, when he was made president of the examining board for the promotion of officers. He died in Washington, D. C., Jan. 17, 1877.

**Smith, Joseph**, the founder of the Mormons; born in Sharon, Windsor co., Vt., Dec. 23, 1805. About 1820 Joseph claimed to be a constant witness of supernatural visions and to be gifted with a supernatural sight. He pretended that he received in 1828 a divine revelation inscribed in mysterious hieroglyphics on golden plates which were delivered to him by an angel, and that the "Book of Mormon," which he published in 1830, was translated from those golden plates. The translation was dictated by him while he sat behind a curtain as if in the society of spiritual companions. He gathered a number of converts, and as "prophet" went with them first to Kirtland, O., and then to Independence, Mo. The subsequent events of his life are a part of the history of the Mormons. He died June 27, 1844.

**Smith, Joseph Fielding**, a Mormon apostle; born in Far West, Mo., Nov. 13, 1838. He was ordained to one of the "seventies" in 1858 and to apostleship in 1866, becoming a member of the Council of Twelve in 1867. He was several times a member of the Utah Legislature, and in 1882 presided over the Constitutional Convention which framed the constitution for the State of Utah. He succeeded Lorenzo Snow as president of the Mormon Church in October, 1901.

**Smith, Leigh**, an English Arctic explorer; after amassing a fortune was seized with a desire to spend it in a search for the North Pole. He made two voyages of exploration and brought back important contributions to our knowledge of the polar regions.

The gold medal of the Royal Geographical Society was awarded to the plucky and fortunate explorer, who set sail again June 13, 1881, with Dr. Neale, Captain Lofley, and a crew of 22 men, the vessel being provisioned for 14 months and having a two years' supply of flour and bread. The "Eira" was last seen on July 8, 1881, off the



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W. coast of Nova Zembla, going N. No word having been received from the ship for over a year an expedition was fitted out to send in search of her. It consisted of a steam whaler, the "Hope," which was commanded by Sir Allan Young. It left London in June, 1882. The "Hope" reached Peterhead, Aberdeen, on Aug. 20, following, bringing the entire crew of the missing vessel. The "Eira" had been caught in the ice and sunk off Cape Flora, on Aug. 21, 1881.

**Smith, (Michael) Hoke**, an American lawyer; born in Newton, N. C., Sept. 2, 1855; admitted to the bar in Atlanta, Ga., in 1873; practiced there till 1900; Secretary of the Interior in 1893-96; Governor of Georgia in 1907-09, and in 1911-13; U. S. Senator for the terms of 1911-21.

**Smith, Sydney**, an English clergyman; born in Woodford, Essex, England, June 3, 1771. Educated at Winchester School, Sydney, in 1789, entered New College, Oxford, where he took his degree of M. A. in 1796, becoming fellow a few years afterward. In 1799 he went to Edinburgh as tutor to a young gentleman, continued there for five years, and was one of the founders in 1802 of the "Edinburgh Review," being also one of its most influential contributors. In 1804 he removed to London, about the same time married, and became renowned as one of the wittiest and most genial of men. In 1831, during the ministry of Earl Grey, he became one of the canons of St. Paul's. Died in London, Feb. 22, 1845.

**Smith, Thomas Southwood**, an English sanitarian; born in Martock, Somersetshire, England, in 1778. He studied medicine at Edinburgh. After several years of hospital work he embodied his experience in a "Treatise on Fever" (1830), which has been described by a competent authority as the best work on the subject that has ever been written. In 1832 he was appointed one of the commissioners to inquire into the condition of factory children, and his report led to the passage of the Factory Act, which put an end to the inhuman treatment to which children had been subjected in factories up to that time. His inquiry into the condition of children

**Smith**

and young persons employed in mines led to the exclusion of children and women from British mines. In 1846 his report on the means requisite for the improvement of the health of the metropolis resulted in the Public Health Act of 1848. He also did immense service to the cause of science by his reports on cholera and quarantine. He died in Florence, Italy, in 1861.

**Smith, William**, the "father of English geology"; born in Churchill, Oxfordshire, England, March 23, 1769. He became convinced that each stratum contained its own peculiar fossils, and might be discriminated by them, and in 1815 he was able to submit a complete colored map of the strata of England and Wales to the Society of Arts, and received the premium of \$250 which had for several years been offered for such a map. His fame as an original discoverer was now secure; but becoming involved in pecuniary difficulties he was obliged to part with his geological collection to the government for \$3,500. Subsequently a pension was granted to him by the government. He died in Northampton, England, Aug. 28, 1839.

**Smith, William**, an English classical scholar; born in London, England, in 1813 or 1814. He was of great learning, and his works have been very influential in the guidance and extension of scholarship. They include: "Dictionary of Greek and Roman Antiquities" (1840-1842); "Dictionary of Greek and Roman Biography and Mythology" (1843-1849), etc. He died Oct. 7, 1893.

**Smith, William Farrar**, an American military engineer; born in St. Albans, Vt., Feb. 17, 1824; was graduated at the United States Military Academy in 1845. At the outbreak of the Civil War he was assigned to duty under General Butler, and later commanded a division of the Army of the Potomac at the siege of Yorktown and in the battles of Williamsburg, Malvern Hill, Antietam, etc. He was appointed chief engineer of the Army of the Cumberland on Oct. 3, 1863, and subsequently planned the battles of Brown's Ferry and Missionary Ridge, and threw a bridge 1,500 feet long across the Tennessee river for Sherman's army. After the

## Smith

war he resigned from the army and became president of the International Ocean Telegraph Company and of the New York Board of Police. Died 1903.

**Smith, Sir William Sidney**, an English naval officer; born in Westminster, England, July 21, 1765. He entered the navy at the age of 12, received his lieutenantcy at 16, and when 19 was created post captain. Appointed later to the "Tiger," Sir Sidney did good service in Syria and subsequently in Egypt against Bonaparte, receiving a severe wound at the battle of Alexandria. On his return to England various marks of distinction were bestowed on him, and in 1802 he entered Parliament as member for Rochester. He was created rear-admiral of the blue in 1805, and in 1806, as commander of a small squadron, inflicted signal injuries on the French off the coast of Naples. Next year he accompanied Admiral Duckworth to the Dardanelles, where he distinguished himself by the destruction of a Turkish squadron. He was made vice-admiral in 1810, admiral in 1821, and in 1830 succeeded King William IV. as lieutenant-general of marines. As a reward for his services he received a pension of \$5,000 a year and the decoration of K. C. B. He died in Paris, France, May 26, 1841.

**Smith College**, an educational non-sectarian institution for women in Northampton, Mass.; founded in 1875.

**Smithson, James**, an English philanthropist; natural son of Hugh Percy, 3d Duke of Northumberland; born in England in 1765; was graduated at Oxford in 1786, and elected a member of the Royal Society in 1787. In 1835 his property, amounting to \$508,318, came into the possession of the United States government, having been bequeathed by him "for the purpose of founding an institution at Washington, D. C., to be called the Smithsonian Institution for the increase and diffusion of knowledge among men." He died in Genoa, Italy, June 27, 1829.

**Smithsonian Institution**, a literary, scientific, and philosophical institution, organized at Washington, D. C., by Act of Congress in 1846, pursuant to the will of James Smithson. The management of the institution is in the hands of regents ap-

## Smoky Mountains

pointed by the United States government, and a spacious structure, containing a museum, library, cabinets of natural history, and lecture rooms, has been the result of their able administration of the testator's wishes. The library (150,000 volumes), carefully collected, is unsurpassed in the United States as a resource for scientific reference, while in its museum are collected the rich acquisitions of national exploring expeditions. Some part of its income is devoted to scientific researches, and the production of works too costly for publication by private individuals. Departments of astronomy, ethnology, meteorology, and terrestrial magnetism, have been established. The United States Weather Bureau has grown out of its department of meteorology, and the United States Fish Commission was established in connection with its work in ichthyology. Under its direction are the United States National Museum; the Bureau of International Exchanges; the Bureau of American Ethnology; the Astro-Physical Observatory; and the National Zoological Park.

**Smith Sound**, a passage of water leading to the Arctic regions, at the N. extremity of Baffin Bay, between Prudhoe, in Greenland, and Ellesmere Land. Its S. entrance was discovered by Baffin in 1616. In 1854 it was surveyed by a United States expedition under Dr. Elisha Kent Kane. A gulf 110 miles long was found at its N. E. end.

**Smoke**, the exhalations, visible vapor or substance that escapes, or is expelled, in the process of combustion, from the substance burning. In great cities, where bituminous coal is consumed on a large scale for manufacturing purposes, the atmosphere is constantly charged with clouds of smoke, which is diffused over everything. This has led to the manufacture of various devices to consume or otherwise do away with smoke which have met with various degrees of success.

**Smoky Mountains, or Great Smoky Mountains**, a range on the boundary of North Carolina and Tennessee; is a part of the Appalachian system. Mount Guyot, 6,636 feet high, and Clingman's Peak, 6,660 feet high, are among its loftiest summits.

**Smollett, Tobias George**, a British novelist and miscellaneous writer; born near Renton, Dumbartonshire, Scotland, in March, 1721. He was educated at the University of Glasgow, and was apprenticed to a surgeon. In 1740 he went to London and in 1748 he published his "Adventures of Roderick Random," a novel which brought him fame and fortune, which latter he needed badly.

He went to Paris in 1750, and about this time wrote his "Adventures of Peregrine Pickle," which appeared in 1751. He now obtained the degree of M. D., but never succeeded in practice. In 1761, 1762, and 1763 appeared his "Continuation of the History of England down to 1765," since often reprinted as a continuation of Hume's history. In 1766, after a residence of about two years on the Continent, he published his "Travels through France and Italy"; and 1767 his "History and Adventures of an Atom." He died in Monte Nuovo, near Leghorn, Italy, Oct. 21, 1771.

**Smolt**, a name given to young river salmon when they are bluish along the upper half of the body and silvery along the sides.

**Smuggling**, originally and strictly a crime of commerce, a violation of customs laws, to be distinguished from such a crime of manufacture as illicit distillation, which violates excise laws. But the term is commonly applied also to the evasive manufacture and disposal of commodities liable to excise as well as to the clandestine importation of articles on which customs duties have been imposed. Defrauding the government of revenue by the evasion of customs duties or excise taxes may therefore serve as a definition.

**Smut**, in botany, dust-brand; a fungus, which attacks the ears of barley, oats, and rye, but is seldom found on wheat. In appearance it resembles bunt, but it is inodorous. When examined microscopically, the black powder is found to consist of round spores, smaller than those of bunt and without reticulations. It has been ascertained that one square inch of surface would contain not less than eight millions of spores.

**Smyrna** (*Turkish*, Ismir), an ancient city and seaport of Asiatic

Turkey, on the W. coast of Asia Minor, at the head of the gulf of the same name. Smyrna has been for centuries the most important place of trade in Asia Minor. The chief imports are cotton manufactures, woolen cloths, colonial goods, iron, steel, and hardware goods. The principal exports are dried fruits (especially figs), cotton, silk, goats' hair, sheep and camels' wool, valonia, madder root, yellow berries, sponges, and opium. In the World War it was bombarded by British warships, March 15, 1915. Pop. estimated at 375,000.

**Smyrna, Gulf of**, formerly the Hermæan Gulf, an inlet of the Aegean Sea on the coast of Asiatic Turkey, so called from the town of Smyrna, which stands at its head. It is 40 miles in length by 20 at its broadest part, and contains several islands and affords good anchorage.

**Smythe, William Ellsworth**, an American journalist; born in Worcester, Mass., Dec. 24, 1861. Initiated the National Irrigation Congress of 1891; established the "Irrigation Age" in 1891, and edited it till 1896; founded the notable settlement of New Plymouth, in Idaho, in 1895, and lectured extensively on irrigation and Western institutions throughout the United States.



COMMON SNAIL.

a, eggs; b, appearance when newly hatched; c, slightly advanced stage; d, mature snail.

**Snail**, the common name of gasteropodous mollusks. They feed chiefly on vegetable substances, though they are very indiscriminate in their appetite and even devour the dead of their own kind. The mischief which they do to garden crops is well known. Snails delight in warm, moist weather; in

## Snake

dry weather, their chief time of activity is during the night, and they hide themselves by day; but after rain they come forth at any hour in quest of food. At the approach of winter or in very dry weather they close the mouth of the shell with a membrane (epiphragm), formed by the drying of the mucous substance which they secrete, and become inactive and torpid.

**Snake**, a serpent, any species of the order Ophidia. The best-known harmless snake is probably the common snake, known also as the ringed or grass snake. The black snake, of which there are two species, is also very common in the United States. The common snake has no poison fangs, but is furnished with scent glands which secrete a volatile substance of offensive and penetrating odor. Snakes are partial to damp situations and enter water readily, swimming with ease. They are voracious and swallow their prey—frogs, mice, and small birds—alive and entire, their teeth, which are in two rows on each side of the jaws and directed backward, being too weak to tear or masticate.

**Snakeroot**, the popular name of numerous American plants of different species and genera, most of which are, or formerly were, reputed to be efficacious as remedies for snake bites.

**Snapping Turtle**, a fresh water tortoise widely distributed over the United States. They grow to a considerable size, a weight of 20 pounds being far from uncommon, and are prized as food. Their popular name is derived from their ferocity in captivity, and their habit of biting or snapping at everything that comes in their way. Called also alligator terrapin and alligator tortoise.

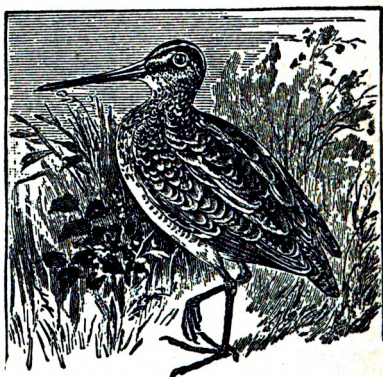
**Sneezing**, a sudden violent and convulsive explosion of air through the nostrils, with a peculiar sound. It is preceded by a more or less long-drawn and deep inspiration, like that which precedes coughing; but the opening from the pharynx into the mouth is closed by the contraction of the anterior pillars of the fauces and the descent of the soft palate, so that the force of the blast is driven entirely through the nose. It is caused by the irritation of the inner membrane of the nostrils, and is designed to throw

off any particles causing the morbid action.

**Snelling, Fort**, a military post in Hennepin co., Minn., on the Mississippi river, opposite St. Paul.

**Snider, Jacob**, inventor of a method for converting Enfield muzzle-loading rifles into breechloaders, originally a Philadelphia wine merchant; busied himself in inventions connected with dyeing, brewing, coach wheels, the sheathing of ships, etc., and went to England in 1859 to induce the British government to adopt his system of breech loading or converting. In this he succeeded, but for one reason or another found himself unable to obtain the expected remuneration. He died Oct. 25, 1866, without having received the reward of his labors, worn out by delays, lawsuits, poverty, and debts.

**Snider, Denton Jacques**, an American author; born in Mt. Gilead, O., Jan. 9, 1841; was graduated at Oberlin College in 1862. His studies of the great poets, Homer, Shakespeare, Dante, Goethe, and his writings on kindred topics, are very numerous, comprising some 18 volumes. His book "A Walk in Hellas" (1882), is a remarkable study of Greece as it was till recently, illuminated by what it was in its prime.



COMMON SNIPLE.

**Snipe**, the name of a common family of birds. The common Ameri-

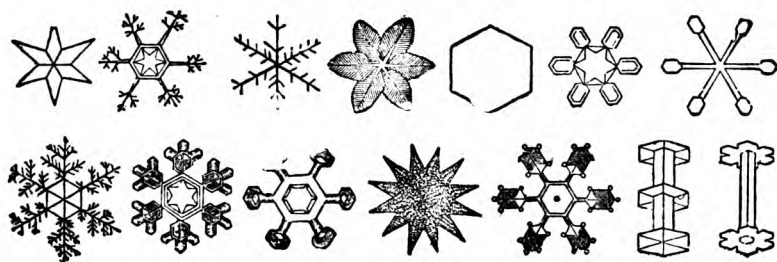


can snipe is about equal in size to the common snipe of Europe, and much resembles it also in plumage. The tail has 16 feathers. This species is abundant in summer in the N. parts of the United States and in Canada, and in the more S. States in winter. It is much in request for the table, and is often caught in snares. It is much esteemed as a delicious and well-flavored dish.

**Snoring**, an abnormal and noisy mode of respiration produced by deep inspirations and expirations through the nose and open mouth, the noise being caused by the vibrations of the soft palate and uvula. Sometimes the noise arises in the glottis, the vocal chords vibrating loosely. Keeping the mouth shut will usually make snoring impracticable.

constitute the clouds, when the temperature of the latter is below zero. They are more regular when formed in a calm atmosphere. Their form may be investigated by collecting them on a black surface, and viewing them through a strong lens. The regularity, and at the same time variety, of their forms, are truly beautiful.

In the economy of nature snow answers many valuable purposes. By its gradual melting in high regions it serves to supply streams of running water which a sudden increase in the form of rain would convert into destructive torrents or standing pools. In many countries snow tempers the burning heat of summer by cooling the winds which pass over it. On the other hand, in colder climates snow serves as a defense against the severity



SNOW CRYSTALS MAGNIFIED.

**Snorri Sturluson**, an Icelandic poet and historian; born in Hvami, in the Dala district of Iceland, in 1178. By his marriage, first with Herdys (1199), and after her death with Hallveg Ormsdatter, gained great possessions, sometimes appearing at the Althing with a following of 800 to 900 men. Snorri was the last and one of the greatest of the Northern skalds. He wrote many panegyrics and heroic songs, and is believed to have been the author of part of the "Younger Edda." His principal work is the "Heimskringla" ("ring of the world"), a collection of sagas on the ancient history of Norway.

**Snow**, in meteorology, water solidified in stellate crystals, variously modified, and floating in the atmosphere. These crystals arise from the congelation of the minute vesicles which

of winter, where it protects plants against the frost and serves as a shelter to animals, which bury themselves in it. The elevation at which mountains are covered with perpetual snow is called the "snow line," or plane of perpetual snow. The snow line on the N. side of the Himalayan Mountains is 18,600 feet; on Chimborazo, 15,802 feet. The altitude of perpetual snow under the equator was fixed by Humboldt at 15,748 feet; toward the poles it is considerably lower. The snow line of the Alps, N. latitude 46°, is only 8,860 feet; and that of the Pyrenees about 8,850 feet. At the North Cape, in lat. 71° it is only 2,300 feet.

**Snow, Lorenzo**, a Mormon apostle; born in Mantua, O., April 3, 1814; was converted to Mormonism in 1836; became a missionary in 1837, and traveled in England and other coun-



## Snowball Tree

tries; and on his return to the United States organized and captained the Nauvoo Legion, the body of Mormon troops in Illinois. He was a member of the Utah Legislature in 1852-1882; founded Brigham City, Utah; was ordained one of the Twelve Apostles of the Church in 1849, and succeeded Wilford Woodruff as president of the Mormon Church in 1838. Died in Salt Lake City, Utah, Oct. 10, 1901.

**Snowball Tree**, the garden variety of the guelder rose.

**Snowberry**, a bushy, deciduous shrub, native of the N. parts of North America. It has simple leaves, small flowers, and white uneatable berries about the size of black currants, remaining on the bush after the leaves.

**Snowbird**, the common name of a genus of birds, distinguished by their bills small and conical, the wings reaching the basal fourth of the exposed portion of the tail, and the tail slightly emarginate. The common snowbird, or black snowbird, of the United States E. of the Missouri, is  $6\frac{1}{4}$  inches long; grayish or dark ashy black. These birds appear in flocks in winter and are very tame; the flesh is delicate and juicy, and is often sold in the New Orleans market.

**Snow Bunting**, an Arctic passerine bird, visiting more S. latitudes in the winter. It is about seven inches in length, and its plumage varies considerably at different seasons. They feed on seeds and insects, and soon after their arrival in temperate regions become fat, and are then esteemed a delicacy. The Greenlanders kill them in great numbers and dry them for winter use. Their song is not unlike that of the lark, and when singing they perch near a mate; their call is a shrill piping note generally uttered on the wing.

**Snowdrop**, a well-known garden plant. It bears solitary, drooping, and elegant white flowers, which appear early in spring; is a native of the Alps, but quite common in gardens in the Northern United States.

**Snowdrop Tree**, a name of ornamental trees of the Southern United States with flowers like snowdrops, belonging to the styrax family.

**Snow Goose**, in ornithology, the *Anser hyerboreus*. It obtains its

## Soap Bubbles

snow-white plumage only at maturity. It breeds in large numbers in the barren grounds of Arctic America and migrates S. during the winter.

**Snow Plow**, an implement used to clear a road or track of snow.

**Snowshoe**, a light frame made of bent wood and interlacing thongs, used to give the wearer a broader base of support when walking on snow. They are usually from three to four feet in length, and a foot to 18 inches broad in the middle.

**Snowy Owl**, a native of America and the N. of Europe. It flies by day and preys on the smaller mammalia and on various birds which it is able to capture.

**Snuff**, a fragrant powdered preparation of tobacco inhaled through the nose. There are numerous varieties.

**Snyder, Simon**, an American military officer; born in Selin's Grove, Pa., Feb. 9, 1839; was appointed a 2nd lieutenant in the 5th United States Infantry, April 26, 1861; was an aide-de-camp of General Couch during the Confederate raid into Maryland and Pennsylvania in 1864, and an acting aide to General Merritt in Sheridan's campaign. After the Civil War he served at various posts in the East and West till the outbreak of the Spanish-American War, when he was placed in command of the 1st Army Corps for service in Cuba. He was appointed governor of the province of Santa Clara, Cuba, Dec. 6, 1898, and later served on special duty at Ponce, Porto Rico. He was mustered out of the volunteer service, May 12, 1899, and ordered to the Philippines, where he commanded the United States troops in the district of Cebu. On his return he was appointed acting inspector of the Department of the Lakes. He died April 14, 1913.

**Soap**, strictly speaking, a salt consisting of a fatty acid in combination with a metallic base. Ordinary soap is freely soluble in both hot and cold water, but if any of the earths, such as lime, be present, an insoluble compound is immediately formed; or, in common language, the soap curdles, from the water being hard.

**Soap Bubbles**. The blowing of soap bubbles is of great antiquity, and is to be seen depicted on an

## Soap Plant

Etruscan vase in the Louvre. The beautiful play of colors familiar to all is due to the excessive but variable thinness of the soap films. The spherical form of the ordinary soap bubble is a direct result of the action of surface tension, the geometrical condition being that with given volume the surface must have minimum area.

**Soap Plant**, a name common to several plants used in place of soap, as the *Phalangium pomaridianum*, a Californian plant.

**Soapstone**, or **Steatite**, a hydrated silicate of magnesia, with a smooth greasy feel like that of soap, and so soft as to yield to the nail. It is a massive variety of talc, which, when pure and compact, is much used as a refractory material for lining furnaces, being infusible in any ordinary furnace heat. It is easily turned in the lathe, or cut with knives and saws, and is made into culinary vessels. When very strongly heated, soapstone loses the small portion of combined water which it contains and becomes harder and susceptible of polish.



SOAPWORT.

**Soapwort** (*Saponaria*), a genus of plants of the natural order Caryophyllaceæ; so called because the bruised leaves produce a lather like soap when agitated in the water. Common soapwort grows by the roadside in the United States from New Eng-

## Soccer

land to Georgia. It is a native of many parts of Europe, and is found on waysides, river banks, and thickets; in Great Britain it is found in alluvial meadows and under hedges. It has handsome pink-like flowers.

**Socage**, or **Soccage**, in old law, a tenure by any certain and determinate service; being in this sense put in opposition to knight service where the render was precarious and uncertain, and to villeinage, where the service was of the meanest kind.

**Soccer**, or **Socker**, the popular name for Intercollegiate Association Football. Introduced from Great Britain, it was first taken up in the United States by Haverford College, Pa., in 1901, was soon adopted by all leading colleges, and is now regulated by the Intercollegiate Association Football League, organized in 1906. The game is fast and clean, and dangerous play is barred. No tripping, kicking or jumping at a player is allowed. Except the goal-keeper, no player intentionally handles the ball under any pretence. A player must not use his hands to hold or push an opponent. Charging is permissible, but it must not be violent or dangerous. A player shall not be charged from behind unless he is intentionally obstructing an opponent. When, however, cases of handling the ball and tripping, pushing, kicking, or holding an opponent, and charging an opponent from behind, may so happen as to be considered unintentional, a decision of the International Board rules that in such a case no penalty shall be inflicted. Tripping is defined as intentionally throwing, or attempting to throw, an opponent by the use of the legs, or by stooping in front of or behind him. Holding, as obstructing a player by the hand or any part of the arm extended from the body. A player shall not wear any nails (except such as have their heads driven in flush with the leather) or metal plates or projections, or gutta percha, on boots or on shin guards, but soft india-rubber on the soles of boots is allowed. If bars or studs on the soles or heels of the boots are used, they shall not project more than half an inch, and shall have all their fastenings driven in flush with the leather. Bars shall be transverse and

flat, and not less than half an inch in width, and shall extend from side to side of the boot. Studs shall be round in plan, not less than half an inch in diameter, and in no case conical or pointed. The International Board rules that, if required, the Referee shall examine the players' boots before the commencement of a match, and any player discovered infringing these provisions is prohibited from taking part. Born of experience, the elimination of these unnecessary dangers regenerated football at a time when such a game for the masses in the fall and early spring was a necessity in the national athletic field.

The game is played by a field of eleven players on each side. The field of play marked by boundary lines has a maximum length of 130 yards and a minimum length of 100 yards, a maximum breadth of 100 yards and a minimum breadth of 50 yards. The lines at each end are the goal-lines, and the lines at the side drawn at right angles with the goal-lines are the touch-lines. A flag with a staff not less than five feet high is placed at each corner. A half-way line is marked out across the field of play, and the centre of the field is indicated by a suitable mark, a circle with a 10 yards radius being made around it. The goals are upright posts fixed on the goal-lines, equi-distant from the corner flag-staffs, 8 yards apart, with a bar across them 8 feet from the ground. Lines are marked 6 yards from each goal-post at right angles to the goal-lines for a distance of 6 yards, and these are connected with each other by a line parallel to the goal-lines, the space within these lines being the goal area. The penalty area is marked by lines from each goal-post at right angles to the goal-lines for the distance of 18 yards, and connected with each other by a line parallel to the goal-lines. A suitable mark made opposite the centre of each goal 12 yards from the goal-line is the penalty kick mark. The touch and goal-lines must not be marked by a V-shaped rut. The duration of the game is 90 minutes unless otherwise mutually agreed upon. Ends are changed only at half-time, when the interval does not exceed five minutes except by consent of the referee. For

the various laws and rules concerning the dimensions of the ball, choice of goals, the kick-off, the scoring of a goal, the throw-in, off-side, goal kick, corner kick, goal-keeper's privileges, duties and powers of referee and linesmen, terms used in the game, and other details, consult Spalding's publications on "How to Play Soccer" and "Soccer Football Guide." See FOOTBALL.

**Sociable.** (1) An open carriage with seats facing each other, and thus convenient for conversation. (2) A species of tricycle. (3) A kind of seat with a curved S-shaped back, for two persons who sit partially facing each other. (4) A gathering of people for social purposes; a social party; an informal meeting.

**Social Contract, or Original Contract,** that imaginary bond of union which keeps mankind together, and which consists in a sense of mutual weakness and dependence.

**Social Insects,** the name applied generally to the species of bees, wasps, hornets, ants, white ants or termites, etc., which live in communities.

**Socialism,** a term sometimes used in a very general sense to designate the theories and plans of those who, from the earliest times to the present, have advocated radical changes in our social and economic order, and have done so in modern times especially in the interests of the common man, till the wage earner has now become the central figure in socialistic theory and agitation. While socialism in the broad general sense has reference to most diverse changes of a radical sort in the social and economic order, in a narrower and more modern sense it means the theories and plans of those who would substitute public property in land and capital for private property in these instruments of production.

Modern socialism, as a popular movement has become thoroughly democratic, looks with little favor on the idea of classes permanently set apart for rulership, and is inclined to favor equal incomes while allowing each one to use his income as he might see fit.

Socialism holds that the present sys-

tem of industry which is carried on by private competing capitalists, served by competitive wage labor, must be superseded by a system of free associated workers utilizing a collective capital with a view to an equitable system of distribution. On this theory private property in land and capital will be abolished and the private receipt of rent and interest will cease. Incomes would be private as already stated, and all such moderate wealth as would be devoted, not to production, but to consumption might be regarded as at the free disposition of the owner. Socialism is the extension to industry and economics of the free self-governing principle recognized in democracy. It is industry of the people by the people for the people. The company or private corporation is at present the growing power in industry; but the control of the State and of social opinion is continually extending.

**Socialist Party, The**, a National political organization originating in the Social Democracy of America (1897) and the later Social Democratic party, which placed its first national ticket in the field in 1900, under the leadership of Eugene V. Debs (q. v.). In the election of 1904 the party was distinguished by its present name from the Socialist Labor party, and has since maintained its organization independent of all others. In 1900 Mr. Debs received 87,814 popular votes for President of the United States; in 1904, 402,283; in 1908, 420,793; and in 1912, 875,083; and in 1920 the Socialist vote was 919,799.

**Social War**, the name of a noted struggle in Roman history. M. Livius Drusus proposed a law for investing Italian allies with the privileges of Roman citizens; but it was strongly opposed by the senators, the knights, and the people, and Drusus was assassinated 91 B. C. The Marsi, who took the lead (whence the name Marsian or Marsic, also given to that war), the Peligni, the Samnites, the Lucani, and almost every nation in Italy except the Latins, Tuscans, and Umbrians, revolted and established a republic in opposition to that of Rome. The Romans were induced, hearing that Mithridates VI., King of Pontus, intended to aid the allies, to adopt measures of conciliation, and one state after another submitted and received the gift

of Roman citizenship. After this the war dwindled away till it was brought to a conclusion 88 B. C., by the remainder of the Italian states receiving the concessions they required.

**Society Islands**, an archipelago in the South Pacific, lying between lat. 16°-18° S., and lon. 148°-155° W. There are 13 principal islands, besides numerous islets, and the total area of the group is estimated at 1,520 sq. m., with a pop. of (1926) 35,000. The chief islands are Tahiti, Moorea, Huahine, Raiatea, Tahaa and Bora-Bora. The Society Islands are of basaltic formation and abound in lofty and precipitous mountains usually fringed by a belt of flat land. Two peaks in Tahiti are respectively 7,000 and 8,700 feet high. Coral reefs are very abundant round all the islands. The soil being extremely fertile and water plentiful, the vegetation of the islands is most luxuriant. The climate is healthy, but enervating. The inhabitants belong to the Polynesian race and are handsome, brave, and intelligent, but indolent, fickle, immoral, and passionately fond of ardent spirits. On account of their indolence Chinese and Hervey Islanders are imported to work the cotton plantations. The people of Huahine, however, are enterprising traders, and their flag is seen as far away as San Francisco. The Society Islands were discovered by De Quiros in 1606, but were first made known to the world by Cook, who visited them in 1769, and named them after the Royal Society. They have been the scene of missionary labors since 1797, and have for many years been entirely Christian. Taking advantage of a quarrel between the Protestant and Roman Catholic missionaries, the French espoused the cause of the latter, who were the last in the field, and seized the islands in 1844. In 1847 they were expelled by the natives from Huahine, Raiatea, and Bora-Bora, which, with small dependencies, were again ruled by their own sovereigns. Over the remainder of the group the French exercise a protectorate tantamount to possession. The nominal sovereign, Pomare, Queen of Tahiti, died Sept. 17, 1877.

**Society for Psychical Research**, a society founded in England in 1882 for the purpose of "making an organ-

ized attempt to investigate that large group of debatable phenomena designated by such terms as mesmeric, psychical, and spiritualistic." It has a membership of more than 900, with a branch in the United States with more than 500 members and associates.

**Socinus**, the Latinized name of two celebrated theologians, uncle and nephew, who have given their name to a religious sect, the Socinians, whose modified doctrines are now known as Unitarianism. Laelius Socinus (Lelio Sozzini), born in 1525 at Siena, in Tuscany, and destined for the legal profession, abandoned jurisprudence for the study of the Scriptures. In 1546 he was admitted a member of a secret society at Vicenza, formed for the discussion of religious questions, which arrived at the conclusion that the doctrine of the Trinity was untenable, and that many of the dogmas of the Roman Catholic Church were repugnant to reason. The nature of their deliberations having become known the society was broken up, several of its members put to death, and others, among whom was Socinus, fled the country. He visited France, England, Holland, etc., and resided for some time in Poland, where he found many persons who were in sympathy with his views. He died in Zurich in 1562.

Faustus Socinus (Fausto Sozzini), a nephew of the preceding; born in Siena in 1539, was obliged to leave that town in his 20th year on account of his heretical notions. On the death of his uncle he came into possession of the manuscripts of the latter, by the study of which he found his former opinions confirmed. He began to publish his views at Florence in anonymous writings, but afterward retired to Basel to escape the Inquisition. His opinions were still more fully developed during a residence in Transylvania, and in Poland he had numerous adherents. His death took place in 1604.

**Sociology**, the science of the evolution and constitution of human society. It has for its subject the origin, organization, and development of human society and culture, especially on the side of social and political institutions. Sociology embraces all social phenomena under their statical and

dynamical aspects. It is the study of the conditions of existence and permanence of the social state; social dynamics studies the laws which govern the evolution of society. The field of Anthropology is usually restricted to the discussion of the earlier stages of social development and survivals from that stage into the present.

**Sockeye**, so named from the Indian sauqui or sawkeye, the blueback salmon of the Pacific, one of the chief of its species.

**Socotra**, an island in the Indian Ocean, 150 miles E. by N. from Cape Guardafui, and 220 from the S. coast of Arabia; 70 miles long by 20 broad; area, 1,380 square miles. The interior embraces numerous barren plateaus (1,500 to 2,000 feet), with several well-wooded mountains rising to 4,500 feet; there are fertile valleys between the ranges and belts of rich soil along the coasts. The climate is moist and warm, but healthy. The inhabitants, about 10,000 in all, belong to two distinct types—one with a comparatively light-colored skin and straight hair, the other darker with curly hair. But all speak the same peculiar language, which has certain affinities with the South Arabian dialect of Mahra. The people show traces of intermixture with Negro, Arab, and Indian tribes; and in ancient times the inhabitants of Socotra were believed to have been acquainted with Greek civilization.

**Socrates**, a great Athenian philosopher, the son of Sophroniscus and Phænarete; born near Athens in 469 B. C. He was brought up to his father's calling, that of a sculptor, and for a time gained his living by it. He was an eager student, and soon gave himself up entirely to philosophy. He led an active social life, married Xantippe, served his country as a soldier, and distinguished himself by his courage. His robust constitution made him indifferent to the extremes of temperature; he could dress alike and go barefoot all the year round. He appears to have scarcely ever held any political office and seems to have inclined rather to the aristocratic than the democratic party.

It was as a teacher that Socrates made himself the foremost man of Athens and perhaps of the ancient



world. He wrote no book, he did not establish a school or constitute a system of philosophy. But he almost lived abroad, and mixed with men familiarly, and in the street or any place of public resort, where listeners gathered round him, he talked and questioned and discussed, not for pay, but from the love of truth and a sense of duty. He was persuaded that he had a high religious mission to fulfill, and that a divine voice habitually interfered to restrain him from certain actions; and instead of encouraging profitless speculations on nature or the rhetorical charlatanism of the Sophists, he turned the thoughts of men to themselves, their actions, and their duties. Socrates was distinguished chiefly by his theory of virtue. Virtue, he said, consisted in knowledge. To do right was the only road to happiness; and as every man sought to be happy, vice could arise only from ignorance or mistake as to the means; instead of asserting and imparting, he questioned, and suggested, and showed, and led the way to real knowledge.

As early as 424 B. C. he was attacked by Aristophanes, in his comedy of the "Clouds" as the arch-sophist, the enemy of religion, and corrupter of youth; substantially the same charges as those on which he was prosecuted 20 years later. He was persecuted during the tyranny of the Thirty, and after their fall he was impeached by Anytus, one of their leading opponents, with whom were associated Melitus, a tragic poet, and Lycon, an orator. He was charged with not believing in the gods which the State worshiped; with introducing new divinities; and with corrupting the youth. Death was proposed as the penalty. Socrates defended himself in a tone of confident innocence and worthiness which aggravated the ill-will of his judges. He was condemned by a majority of six; but his additional speech in mitigation of the sentence raised the majority against him to 80. Thirty days elapsed between his sentence and its execution, in pursuance of the law that no criminal must be put to death during the voyage of the sacred ship, the "Theoris" to Delos with the annual offerings. During that period Socrates had the society of his friends and conversed with them as

usual; the last conversation being on the immortality of the soul. He refused the offer of some of his friends to procure means of escape for him; drank the hemlock cup with perfect composure, and so died in the 70th year of his age in 399 B. C.

**Soda**, the protoxide of the alkaline metal sodium. It may be procured in an anhydrous state by burning the metal in dry air or oxygen. It is of a white color, greedily abstracting water from the air, which cannot be expelled by heat. In this state it forms hydrate of soda, or caustic soda.

**Soda Water**, a well-known beverage, which as usually prepared, is a supersaturated solution of carbonic acid gas in water. Soda water, properly called, consists of one, two, or three drachms of carbonate of soda, dissolved in a pint of water highly impregnated with carbonic acid. The mere aqueous solution of carbonic acid which is made by forcing the gas into water by a condensing pump and a pressure of six or eight atmospheres is an agreeable and harmless diluent.

**Sodium**, the alkaline metal of which soda is the oxide. It was discovered in 1807. It occurs in large quantities in nature, chiefly in combination with chlorine, as sea salt. It is also found united with oxygen in certain common minerals, such as albite, analcime, labradorite, and kryptolite. It also occurs in the form of nitrate, carbonate, biborate, and sulphate. It is found in the ashes of plants, especially those which grow near the sea, such as the salsola soda. Sodium has lately become an article of commerce, in consequence of the demand which has arisen for it for the manufacture of aluminum. Chloride of Sodium constitutes the rock salt of commerce, or common table salt.

**Sodom**, one of the cities of the plain, and for some time the dwelling place of Lot. Its crimes and vices were so enormous that God destroyed it by fire from heaven, with three neighboring cities, Gomorrah, Zeboim, and Admah, which were as wicked as itself. The plain in which the doomed cities stood, was pleasant and fruitful, like an earthly paradise; but it was first burned, and afterward mostly overflowed by the waters of the Dead Sea or Lake of Sodom.

**Sofia**, or **Sophia**, capital of Bulgaria; 300 miles N. W. of Constantinople; dates from the Roman Sardica. It has been rebuilt and modernized since 1878. Pop. (1926) 213,162.

**Soignies**, a town of Belgium, Province of Hainault; on the Senne; 22 miles S. W. of Brussels, with a monastery dating from the 7th century. It has breweries and distilleries, and there are large quarries in its neighborhood. To the N. E. is the forest of the same name (now a pleasure-ground for the inhabitants of Brussels), through which the British army marched to the field of Waterloo. It is immortalized in Bryan's "Childe Harold." Napoleon I. ordered 22,000 oaks to be cut down in it to build the celebrated Boulogne flotilla for the invasion of England. Pop. about 12,000.

**Soil**, that part of the disintegrated surface of the earth's crust in which the roots of plants ramify, and from which growing plants derive the mineral substances necessary for their proper development. Soils are formed by the disintegration of the rocks through the continued action of water and air at various temperatures, and by the accumulation of the decaying remains of vegetable organisms. Soils may be characterized by their prevailing primitive earths; hence, they are reduced to sands and gravels, clays, chalky and limestone soils, alluvial soil and peat bogs.

**Soiree**, properly an evening party held for the sake of conversation only; now applied to various kinds of evening parties, at which ladies and gentlemen meet, whatever may be the amusements introduced. The word is frequently employed to denote a meeting or reunion of the members of societies or bodies and their friends.

**Soissons**, a town and fortress of France, Department of Aisne; on the Aisne river; 65 miles N. E. of Paris. It is the key of Paris for an army invading France from the Netherlands, and is the meeting point of several military roads. The principal building is the cathedral, founded in the 12th century, the library of which contains many rare MSS. There are also some remains of the great castellated abbey of St. Jean des Vignes (1076), where Thomas à Becket found refuge

when in exile. Soissons is one of the oldest towns in France, and was celebrated even in the time of the Romans, when it bore the name first of Noviodunum, and afterward of Augusta Suessionum; hence its modern name of Soissons. It was the second capital of Gallia Belgica, and subsequently the most important town of the Romans in Northern Gaul. Near to it Clovis overthrew Syagrius, the Roman commander, in 486. The same prince made Soissons the seat of the Frankish monarchy of Neustria. It has been repeatedly captured and sacked in war—*c. g.* six times during the Hundred Years' War, by the Armagnac party in 1414, by Charles V. (1544), the Huguenots (1565), three times in 1814, and by the Germans in 1870. Pop. about 14,000.

**Sojourner Truth**, an American abolitionist; born of slave parents in Ulster co., N. Y., about 1775; was sold to John J. Dumont when 10 years old; was freed by the act of the New York Legislature in 1817, but did not secure her liberty till 1827, when she escaped to New York city. In 1851, in company with other abolitionists, she began lecturing on women's rights, temperance, politics, and other questions concerning the welfare of her race. Her name was Isabella, but she adopted the name of "Sojourner," claiming to have heard it from the Lord. To this she added the word "Truth" to indicate that all she imparted to men was absolutely true. She died in Battle Creek, Mich., Nov. 23, 1883.

**Sola**, or **Shola**, a small half-floating papilionaceous bush found in marshes in Bengal, India, and growing most during the season of inundation.

**Solanaceæ**, or **Solanææ**, a natural order of exogenous plants and shrubs, but including a few tropical trees. The plants of this order are mostly natives of tropical countries, a small number extending into the temperate climates; in the coldest regions they are entirely wanting. They are mostly distinguished by an offensive smell and by containing a narcotic, poisonous substance, usually associated with a pungent principle, and some of them are among the most active poisons known to man.

**Solan Goose**, the gannet, *Sula basana*. They breed in immense numbers on the coasts of North America, Europe and South Africa.

**Solanum**, the nightshade; the typical genus of Solanaceae. Herbs or shrubs, rarely trees. Flowers in or above the forks of the stem. Known species between 500 and 600, most of them from the tropics, others from temperate climes. *S. tuberosum* is the potato.

**Solar Cycle**, in chronology, a term applied to one of those artificial periods made use of in chronological researches. It comprehends a period of 28 years, compounded of 7 and 4, the number of days in a week, and the number of years in the interval of two leap years. This cycle remained undisturbed till the end of the 19th century; but in consequence of the year 1900 not being reckoned as a leap year, the whole cycle was thereby overthrown.

**Solar Plexus**, in anatomy, a nervous center at the upper part of the abdomen behind the stomach and in front of the aorta and the pillars of the diaphragm. It is the largest of the pre-vertebral centers. Called also the epigastric plexus.

**Solar Star**, the name given to those stars which from the spectrum analysis of their light are supposed to be in the same state of heat, etc., as our central sun is at the present time.

**Solar System**, the sun and all the bodies, by whatever name they may be called, which periodically revolve round the sun as a center. Visible to us are seven distinct orders or systems of revolving worlds. They are the zodiacal light, whatever that may be, the planetary, the satellitic, the meteoric, the cometary, the stellar, and the nebular systems. All but the latter two belong to our solar system. The limits of the planetary system, as far as known, are Mercury, the nearest to the sun, and Neptune, the most distant. The bodies as far as known that are denizens of our solar system are the sun (the center), the planets of Mercury, Venus, earth with one satellite, Mars with 2 satellites, 428 asteroids, Jupiter and 5 satellites, Saturn with 5 rings and 8 satellites, Uranus with 4, and Neptune with 1,

also Halley's, Pons', and Olbers' comets of long period, and about 25 of short period, ranging from 3.3 years (Encke's) to 13.78 years, commonly called Tuttle's comet. To the list must be added 200 or more meteoric rings, which, while the earth is passing through them, produce the star showers. The next return of Halley's comet is calculated for about 1912; Pons', 1995; Olbers', 1960. Every member of the solar system, be it planet, satellite, meteoroid or comet, moves in an orbit called an ellipse, of greater or lesser eccentricity.

**Solar Time**, time as indicated by a sundial. The successive hours so indicated are not equal intervals of time.

**Solatum**, in ordinary language, anything which consoles or compensates for suffering or loss; a compensation. In law, a sum of money paid over and above actual damages to an injured party, by the person who inflicted the injury, as solace for wounded feelings. In ecclesiology, an additional daily portion of food allotted to the inmates of religious houses under exceptional circumstances.

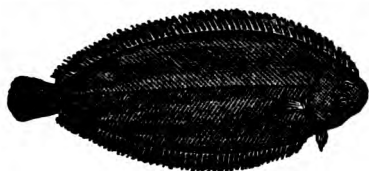
**Solberg, Thorwald**, an American copyright expert; born in Manitowoc, Wis., April 22, 1852; served on the staff of the Library of Congress in 1876-1889; was manager of the literary department of the Boston Book Company in 1889-1897; took an active part in the effort to secure an international copyright; was a member of the American Copyright League, the International Literary and Artistic Association of Paris, and in July, 1897, was appointed United States register of copyrights.

**Solder**, or **Soder**, a metal or alloy used to unite adjacent metallic edges or surfaces. It must be rather more fusible than the metal or metals to be united, and with this object the components and their relative amounts are varied to suit the character of the work. Hard solders are such as require a red heat to fuse them; they are employed for joining brass, iron, and the more refractory metals. Soft solders melt at a comparatively low temperature, and are used with tin and lead, of which metals they are wholly or in part composed.

**Soldiers' Homes**, institutions provided by National and State governments for the care of sick and disabled soldiers and sailors. The United States National Home for Disabled Volunteer Soldiers has branches at Dayton, O.; Milwaukee, Wis.; Togus, Me.; Hampton, Va.; Leavenworth, Kan.; Santa Monica, Cal.; Marion, Ind.; and Danville, Ill. The aggregate number of inmates is about 27,000. The requirements for admission are: (1) An honorable discharge from the United States service. (2) Disability which prevents the applicant from earning his living by labor. (3) Applicants for admission will be required to stipulate and agree to abide by all the rules and regulations made by the Board of Managers. Attention is called to the fact that by the law establishing the Home the members are made subject to the Rules and Articles of War, and will be governed thereby in the same manner as if they were in the army of the United States. (4) A soldier or sailor must forward with his application for admission his discharge paper, and when he is a pensioner, his pension certificate, and if he has been a member of a State Home, his discharge from that Home, before his application will be considered. Soldiers or sailors whose pensions exceed \$16 a month are not eligible to the Home unless the reasons are peculiar and are explained to the manager and are satisfactory to him. Those who have been members of the State Homes must have been discharged from those Homes at least six months before they can be admitted to a branch of the National Home, except by a vote of the Board of Managers. Applicants are requested to conform strictly to the above requirements. The United States Soldiers' Home in the District of Columbia receives and maintains discharged soldiers of the regular army. All soldiers who have served 20 years as enlisted men in the army (including volunteer service, if any), and all soldiers of less than 20 years' service who have incurred such disability, by wounds, disease, or injuries in the line of duty while in the regular army, as unfits them for further service, are entitled to the benefits of the Home. There are State

Homes for disabled volunteer soldiers provided by the States of California, Colorado, Connecticut, Idaho, Illinois, Indiana, Iowa, Kansas, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Vermont, Washington, Wisconsin, and Wyoming.

**Sole** (*Solea vulgaris*), a marine fish belonging to the flat fishes, of an oblong or oval form. These fish abound on all the coasts of Europe, except the most N. where the bottom is sandy. They furnish a whole-



COMMON SOLE.

some and delicious article of food. The name is given in America to flounders, somewhat resembling the true sole in form. The sole is at its worst from February to the end of March, this being the spawning season.

**Solemn League and Covenant**, the agreement during the English Civil War between the Scotch people and the Parliamentarians. See COVENANT.

**Solenhofen Beds**, in geology, beds consisting chiefly of a fine fissile slate, used for lithographic purposes, found at Solenhofen and Eichstadt.

**Solenostoma**, in ichthyology, the sole recent genus of Solenostomidae with two or three small species from the Indian Ocean. This genus is remarkable as being one of the two genera of fishes in which the care of the eggs and young is undertaken by the female, the other being the Silurid genus *Aspredo*.

**Solitaire**, in ornithology, an extinct genus of *Dididae*, with a single species; from the island of Rodriguez. It was described by Lequat in 1708 from personal observation, and prob-

ably survived till 1761. It was allied to the Dodo, but the neck and legs were longer, and the bird was more slightly built. They were formerly very abundant, and, being excellent eating, the early voyagers destroyed great numbers of them. The introduction of swine, which ran wild in the forests, and fed on the eggs and the young birds, completed their extermination.

**Solomon** (Hebrew, Shelomoh, the Prince of Peace), son of David, King of Israel, by Bathsheba, formerly the wife of Uriah, was appointed by David to be his successor in preference to his elder brothers. By his remarkable judicial decisions and his completion of the political institutions of David Solomon gained the respect and admiration of his people; while by the building of the temple, which gave to the Hebrew worship a magnificence it had not hitherto possessed, he bound the nation more strongly to his throne. The wealth of Solomon, accumulated by a prudent use of the treasures inherited from his father; by successful commerce; by a careful administration of the royal revenues; and by an increase of taxes, enabled him to meet the expenses of erecting the temple, building palaces, cities, and fortifications, and of supporting the extravagance of a luxurious court. Fortune long seemed to favor this great king; Israel scarcely perceiving that he was continually becoming more despotic. Contrary to the laws of Moses, he admitted foreign women to his harem; and from love of them he was weak enough in his old age to permit the free practice of their idolatrous worship and even to take part in it himself. Toward the close of his reign troubles arose in consequence of these delinquencies, and the growing discontent, coming to a head after his death, resulted in the division of the kingdom, which his feeble son Rehoboam could not prevent. The 40 years' reign of Solomon is still celebrated among the Jews, for its splendor and its happy tranquillity, as one of the brightest periods of their history. The writings attributed to Solomon are "The Book of Proverbs," "Ecclesiastes," and the "Song of Solomon," with the apocryphal book the "Wisdom of Solomon."

**Solomon Islands**, a group in the South Pacific; lying S. E. of New Britain and E. of New Guinea; extending in a S. E. direction between lat. 4° and 11° S., and long. 152° to 154° E. These islands were first discovered and explored by the Spanish navigator Mendana in 1568. He named them Solomon Islands on the imagined idea that the riches of Solomon's temple had been brought from them. While on his way to colonize them in 1595, he died, and the islands were not again visited till they were rediscovered by Carteret in 1767. They were visited several times during the latter part of the 18th century, and parts of the coast line of the larger islands were surveyed, but between 1794 and 1838, they became almost forgotten. After the latter date the survey of the coast was renewed, and both traders and missionaries endeavored to settle on the islands. There never has been any white settlement of any permanency on the islands. The Solomon group is composed of seven larger islands, and a great number of small ones, the area of the whole being estimated at 14,800 square miles; native pop. about 150,000. The shores are generally low, and bordered in some places with mangrove swamps, but several of the islands are traversed in the interior by mountains of considerable height. Numerous streams flow from the hills and the tropical atmosphere is cooled with abundant rains. The soil is very fertile. The islands are mainly inhabited by negritos though there are some Malays in the N. part. Of their manners and customs very little is known. They are broken into numerous clans which are almost constantly at war. In accordance with the Anglo-German agreement of 1899 the islands of Choiseul and Isabel were transferred to Germany. In 1919, after World War, by Treaty of Paris, they were allotted to Australia.

**Solomon's Seal**, the common name of plants of the genus *Polygonatum*. They are perennial, the stems rising from knotted rootstalks; flowers white or greenish. Common in the Eastern United States and Europe.

**Solomon's Song**, called also the Song of Songs, or Canticles, one of the canonical books of the Old Testa-



ment. From the earliest period this book has been the subject of voluminous controversies. It seems to have been a recognized part of the Jewish canon in the time of Jesus. Modern critics attribute it to an author of Northern Israel, who wrote it about the middle of the 10th century B. C., shortly after the death of Solomon, in a spirit of protest against the corrupt splendor of the court of Zion. The unity of the poem is sufficiently evidenced by the continuity of names, characters, and subject. The main subject of dispute has been as to its interpretation. The various theories in regard thereto naturally fall into two classes, the literal and allegorical. The highest form of allegorical significance contended for is the mystical or spiritual interpretation, by which the whole poem becomes a figurative representation of the hopes and aspirations, together with the trials and difficulties, of a spiritual life. This interpretation, whether applied individually or collectively to the Church or nation of Israel, was almost universally received both by Jews and Christians till recent times. The most favored literal interpretation is that originally given by Jacobi, that the poem represents the temptation and triumph of virtuous love.

**Solon**, one of the seven sages of Greece, and the celebrated legislator of Athens; born in Salamis, in the 7th century B. C. He was chosen archon 594 B. C., and having received full power to do whatever he judged needful, he set himself to the task of improving the condition of his countrymen. He formed a new constitution founded on the principle of making property, not birth, the title to the honors and offices of the State. He made many special laws also relating to trade and commerce, marriage, disposition of property by will, etc., and is said to have bound the Athenians by an oath not to make any changes in his code for 10 years. He then left the country, to avoid being obliged to make any alteration in it, and visited Egypt, Cyprus, and Lydia. On his return, after an absence of 10 years, he found the State torn by party violence, and his kinsman Pisistratus aiming at the sovereignty, which he soon seized. Solon

is supposed to have died at the age of 80, about 558 B. C.

**Solstice**, in astronomy, the time when the sun is at its greatest distance from the equator—so called because he then appears to stand still, for some time. There are two solstices in each year—the summer and the winter. The former is when the sun seems to enter the tropic of Cancer, is on June 21, the longest day; the latter when the sun enters the tropic of Capricorn, on Dec. 22, the shortest day. This is only to be understood of the Northern Hemisphere, as in the Southern the sun's entrance into Capricorn makes the summer solstice, and into Cancer the winter.

**Somerville**, a city in Middlesex county, Mass.; on the Mystic river and the Boston & Maine railroad; 2 miles W. of Boston, with which it has many business and residential interests in common; is chiefly engaged in manufacturing, with an output (1909) of \$38,686,527 in value; is built on several hills, some of which were fortified during the Revolutionary War; contains the remains of some defensive works and the old powder house on Quarry Hill; and had assessed valuation (1916) of \$79,304,329. Pop. (1920) 93,091; (1930) 103,908.

**Somme**, a river of France; rises in the Department of Aisne, 7 miles N. E. of St. Quentin (*q. v.*); flows S. W. past Amiens into the Department of the Somme; and empties into the English Channel about 15 miles beyond Abbeville; length about 150 miles. It is connected with the Oise and Sheldt by a canal. The river gives its name to one of the most determined and protracted campaigns in the World War, beginning July 1, 1916, for details of which see APPENDIX: *World War*.

**Sommers, Richard**, an American naval officer; born in Egg Harbor, N. J., in 1778; was appointed to the navy in April, 1798. In the war with Tripoli he commanded the schooner "Nautilus;" proposed to destroy the Tripolitan fleet by exploding the "Intrepid" in its midst; and was killed in the attempt, Sept. 4, 1804.

**Somnus**, in Roman mythology, the son of Erebus and Nox, and one of the infernal deities, who presided over sleep. According to Hesiod his palace

is a dark cave where the sun never penetrates. At the entrance are a number of poppies and somniferous herbs. The god himself is represented as asleep on a bed of feathers, with black curtains. The Dreams stand by him, and Morpheus, as his principal minister, guards his slumbers from interruption.

**Sondell**, the *Sorex murinus*, a species of shrew mice, also named the muskrat. It exudes a strong odor of musk from the inguinal or abdominal glands. Though named "muskrat," it is not a true rat.

**Song**, a short poem intended to be sung. The term is applied to either a short poetical or musical composition, but most frequently to both in union.

**Sonnet**, a species of poetic composition, first brought into notice by Petrarch, and consisting properly of 14 iambic verses of 11 syllables. It is divided into two chief parts, an octet and sestet, the former comprising two quotations (4 line strophes), and the latter two tercets (3 line strophes). The sonnet generally contains one principal idea pursued through the various antitheses of the different strophes, and is adorned with the charm of rhyme.

**Sonora**, a frontier State in the N. W. of Mexico; on the Gulf of California; is the second largest in the republic; area, 77,900 square miles. The coast is flat and sandy, the interior filled with wooded mountains and fertile valleys. The climate is hot, but in the mountains there is frost for five months in the year. The principal wealth of the State is in its minerals, especially gold, silver, mercury, and iron. Pop. (Est.) 280,000. Capital, Hermosillo.

**Sons of America, Patriotic Order of**, a society first organized in Philadelphia in 1847, as the "Junior Sons of America," and afterward reorganized under its present name. Its objects are principally patriotic and benevolent, and its membership is confined to male persons "born on the soil or under the jurisdiction of the United States of America."

**Sons of Liberty**, an association of the colonists of North America, called into existence by Lord Grenville's

"Stamp Act." They combined to throw off the allegiance to Great Britain and make North America independent. The association began in New York and Connecticut. The term "Sons of Liberty" was suggested by a speech of Colonel Barre's. Also a secret organization opposed to the prosecution of the war for the maintenance of the Union (1861-1865). It was suppressed by military commission in 1864.

**Sontag, Henrietta**, a German soprano singer; born in Coblenz, Prussia, May 13, 1805. Henrietta was the favorite of the Berlin stage before she was 18. She soon rose to the foremost place among European vocalists. About 1830 she married Count Rossi, a Piedmontese nobleman, and left the theater. But she never lost her love for her art, and continued to make progress as an artist in the midst of all the enjoyments of high life. After a happy union of nearly 20 years her husband lost his fortune. Without hesitation she resolved to have recourse to her art. She sang for several seasons in Europe, and came to the United States in 1852. After a brilliant and successful tour through the Union, she accepted a tempting offer from Mexico, where she was cut off by cholera, June 17, 1854.

**Sonthals**, an aboriginal hill tribe found in Southern Bengal, India, who have attracted considerable attention. They are a nomad race, with little affection for home, but a strong reverence for mountains and rivers. They supply a large portion of the hired labor of the plains. In 1855, owing to the exactions of Hindu landlords and money-lenders, they broke into an armed rebellion which required to be repressed by vigorous measures. At the same time the tract where they are most numerous was formed into a new district, called the Sonthal Pergunnahs; area, 5,488 square miles; pop. 1,790,000. The district of the Sonthals covers the Rajmehal hills, and is also peopled by another aboriginal tribe of Pahariya Mals.

**Soot**, a black substance formed by combustion, or disengaged from fuel in the process of combustion, rising in fine particles and adhering to the sides of the chimney or pipe conveying the smoke. The soot of coal and that

## Sophia

of wood differ very materially in their composition, the former containing more carbonaceous matter than the latter. Coal soot contains substances usually derived from animal matter; also sulphate and hydrochlorate of ammonia; and has been used for the preparation of the carbonate.

**Sophia**, Empress of Constantinople, niece of Theodora, and wife of Justinian II., with whom she shared in the government of the state. After the death of that prince in 578 she conspired against Tiberius Constantine, who had been raised to the throne by her advice, and, being defeated by him, was compelled to live in privacy.

**Sophia**, half-sister of Peter the Great, and Czarina of Russia; born in 1667; in 1682 she placed herself at the head of the revolt of the Strelitz. Having succeeded in her ambitious designs, she reigned over the Muscovites under the names of her brothers, Peter and Ivan. The former (Peter the Great) finally possessed himself of the sole power; and Sophia died a prisoner in a convent in 1704.

**Sophia, Church of St.**, in Constantinople, the most celebrated ecclesiastical edifice of the Greek Church, now used as a mosque; was built by the Emperor Justinian, and dedicated in 558. It is in the Byzantine style of architecture, has a fine dome rising to the height of 180 feet, and is richly decorated in the interior. The mass of the edifice is of brick, but is overlaid with marble; the floor is of mosaic work, composed of porphyry and verd antique. The great piers which support the dome consist of square blocks of stone bound with hoops of iron. The numerous pillars supporting the internal galleries, etc., are of white and colored marbles, porphyry, granite, etc., and have capitals of various peculiar forms. The interior of the church is 243 feet in width from N. to S., and 269 in length from E. to W.

**Sophists**. The Greek word *sophistes* (from *sophos*—"skilled," "wise") meant originally any one of acknowledged or professed skill; thus, the term was applied to the seven sages, to poets, musicians, etc. In the 5th and 4th centuries B. C. it came to be

## Sophists

applied specially to those who made a profession of teaching all or any of the higher branches of learning. The great intellectual awakening of Athens after the Persian War, and the growth of democracy, in Sicily and elsewhere, as well as at Athens, which gave skill in public speaking a new importance, led to the demand for an education which should go beyond the old training in "gymnastic" and "music." To meet this demand there arose a class of professional teachers, wandering scholars, who undertook to provide what we should call "higher education." This new movement presents certain resemblances to the rise of the universities in the 13th century, to the popularizing of learning and science in the 18th and 19th centuries, to the "University Extension" movement of today. Some of the "Sophists" were more specially teachers of rhetoric. Other Sophists gave more attention to the matter of public speech, and in this way they were the beginners of moral and political philosophy. The ambitious youth of Athens flocked to a fashionable Sophist from intellectual interest in the new learning and in order to acquire an education which would fit them to obtain success in the law courts and in the popular assembly, or to acquit themselves with distinction in a discussion on any subject whatever. The various Sophists naturally differed much from each other in ability, in character, and in the degree of seriousness with which they regarded their function as teachers; and some may very well have deserved the censure expressed in Aristotle's definition of the Sophist as "a man who makes money by sham wisdom." The very opinions maintained by certain Sophists reappear in more fully developed forms among English and French writers of the 17th and 18th centuries. Much of the teaching of the Sophists was undoubtedly destructive of the old fabric of Greek belief and of Greek society, which rested on the narrow basis of an exclusive citizen caste with a substructure of slavery. The modern student will not necessarily think the worse of the Sophists on that account; though the majority of them were probably by no means com-

scious of the significance of the critical weapons they handled. By raising problems in almost every department of thought for which they could find no satisfactory answers, they prepared the way for the great period of Athenian philosophy. In later times the term "Sophist" came into reputation again; and some of the Greek professors of rhetoric under the Roman empire were described as Sophists on their tombs.

**Sophocles**, a Greek tragic poet; born in the Attic demus or village of Colonus, 495 B. C., 30 years later than Æschylus. He received a good education, and at an early age gained the prize in music and gymnastics. He was 15 when the battle of Salamis was fought, and for his remarkable beauty and skill in music he was chosen to lead the chorus which sang the pæan of victory. His first appearance as a dramatist was in 468, when, under memorable circumstances, he had Æschylus for his rival and won the victory. The number of plays attributed to him without question was 113, of which 81 were probably produced after the "Antigone." Seven only are extant, viz., "Antigone," "Electra," "Trachinian Women," "King Œdipus," "Ajax," "Philoctetes," and "Œdipus at Colonus." He died in 406 B. C.

**Sorel**, city and capital of Richelieu county, Quebec, Canada; on Lake St. Peter at the mouth of the Richelieu river and on the Quebec Southern railway; 45 miles N. E. of Montreal; is a port of entry, with much river commerce; is in a rich farming section; has considerable manufacturing and ship-building interests; is the site of a fort built in 1665. Pop. (1921) 9,200.

**Sorghum**, is the Indian or great millet, or guinea corn. It is an annual cane-like cereal, bearing a dense head of spikelets, with small corn-like seeds. In India it forms with rice and wheat the chief staple of the country, but is considered heating. Bread, porridge, etc., are made from it; its seeds when crushed constitute an auxiliary food for cattle, sheep, horses, swine, and poultry. Some varieties of sorghum are cultivated in the Northern United States and in Canada.

**Sorosis**, in botany, a collective fruit, formed of a number of separate flowers, firmly coherent in a fleshy or pulpy mass with the thalamus on which they are situated. The pineapple is an example; each hexagonal division represents a flower, while the crown of leaves above consists of empty bracts. The breadfruit, jackfruit, and mulberry are examples.

**Sorosis**, the name of the first women's club in the United States, founded by Mrs. "Jenny June" Croly and some of her associates, in New York city, in 1868.

**Sorrel**, a diocious plant, having the lower leaves sagittate, the upper ones sessile, the outer fruiting sepals reflexed, the inner enlarged, orbicular, quite entire, scarious, tubercled at the base. Found in meadows and pastures. It contains a large quantity of binoxalate of potash. The leaves are used as a salad and a potherb, and in decoction as a febrifuge.

**Sorrel Tree**, a tree belonging to the natural order Ericacæ. It inhabits the range of the Alleghanies from Virginia to Georgia. The leaves are four or five inches long, oval-acuminate, finely toothed, and strongly acid in taste. The flowers are small, white, and disposed in long one-sided racemes, clustered in an open panicle.

**Sosigenes**, a philosopher who aided Julius Cæsar in reforming the calendar in the year 46 B. C.

**Soul**. In Scripture and theology the word soul is used chiefly for "that spiritual, reasonable, and immortal substance in man which is the origin of our thoughts, of our desires, of our reasonings, which distinguishes us from the brute creation, and which bears some resemblance to its Divine Master" (Cruden). All Christians admit the responsibility of the soul to God for the deeds done in the body; and the orthodox view—that of the Anglican, Roman, and Greek Churches and of the great dissenting bodies—is that at the final judgment the lot of every soul will be irrevocably fixed, and that it will either eternally enjoy the Beatific Vision in heaven or share the endless torments prepared for the devil and his angels. Two other views—both of which have found supporters in the Church from

early ages — are coming increasingly to the front: (1) That of the Restorationists, of whom there are two schools: (a) the Dogmatic, who assert, and (b) those, represented by Archdeacon Farrar, who express a hope that all men will be finally saved; and (2) the Annihilationists or Destructionists, who hold that while the righteous will be forever in a state of bliss, the wicked, after receiving the punishment of their sins, will be blotted out of existence. Origen, with Plato, held the doctrine of the preëxistence of souls. Two distinct views have at different times found supporters in the Christian Church: (1) That the soul is produced by natural generation; (2) that each soul is separately created by God.

**Soul, Korea.** See SEOUL.

**Soule, Pierre,** an American statesman; born in Castillon, France, in September, 1802. He went to Paris in 1824, where he became editor of "Le Nain Jaune" ("The Yellow Dwarf"), a paper noted for its extreme liberal ideas. For the publication of a bitter article attacking the ministers of Charles X. he was sentenced to imprisonment, but escaped and arrived in Baltimore, Md., in 1826. Subsequently he went to New Orleans. In 1847 he was appointed to the United States Senate and elected to a full term in that body in 1849. Later he was sent on a mission to Spain with the object of negotiating for the acquisition of Cuba by the United States; and in 1854 was one of the ministers who framed the famous "Ostend Manifesto." Up to the time of Abraham Lincoln's election he had advocated secession, but thereafter favored co-operation. On the passage by the Southern States of the ordinances of secession, he tendered his services to the Confederate government, and in 1862 became an honorary aide on the staff of General Beauregard. At the close of the war he returned to New Orleans and practiced law till his death there, March 26, 1870.

**Sound,** strictly the sensation which results from the stimulating action of atmospheric or other vibrations upon the aural nerves. Beyond ourselves it has no existence, it is purely subject-

ive, and as a sensation must be carefully distinguished from the vibratory motion which is one of the necessary conditions of its existence. Further, the existence of this vibratory motion is itself conditioned by two things — a distributing cause and a suitable medium for transmitting the disturbance to the ear. The study of these in all their possible relations constitutes the science or theory of sound. As far as the physics of the subject is concerned, it is immaterial what the nature of the medium is, provided it is elastic enough to vibrate; physiology, however, demands that the medium be fluid, otherwise the transmission of the vibrations to the organs of hearing would be impossible. Sounds are usually classified under two heads of noises and musical sounds. A musical sound is caused by a regular series of exactly similar disturbances or pulses succeeding each other at precisely equal intervals of time; if these conditions are not fulfilled, the sound is a noise.

**Sounding,** the operation of trying the depth of water and the quality of the bottom, especially by means of a plummet sunk from a ship. In navigation two plummets are used, one called the hand lead, weighing about eight or nine pounds; and the other, the deep sea lead, weighing from 25 to 30 pounds (see Lead). The former is used in shallow waters, and the latter at a distance from shore. The nature of the bottom is commonly ascertained by using a piece of tallow stuck upon the base of the deep-sea lead, and thus bringing up sand, shells, ooze, etc., which adhere to it.

**Sounding Board,** in a pianoforte, a piece of wood, usually the best Swiss fir, placed behind the strings in order that the resonance may be increased. The term is also applied to a wood screen placed behind a speaker in halls and churches for acoustic purposes.

**Soup.** As a general rule soup is made by boiling meat or vegetables in what is called "stock." To prepare the latter the cook obtains fresh meat, bones, and vegetables such as carrots or leeks, and after the addition of salt allows them to simmer for some hours



in sufficient water. The stock is the infusion thus prepared.

**Sousa, John Philip**, an American musician; born in Washington, D. C., Nov. 6, 1854; studied music, and was leader of a band when only 17. He was band leader of the United States Marine Corps, 1880-1892, and in the latter year organized the famous Sousa Band, which gave concerts in England, France, Germany, and all over the United States. He composed numerous songs, waltzes, operas, orchestral suites, and popular marches.

**South Africa, Union of**, a federation of the former British colonies of Cape Colony, Natal, Orange River Colony, and the Transvaal Colony; proclaimed May 31, 1910. The former colonies, with such as may be admitted hereafter, will be known as provinces. The Union has a Parliament (Senate and House of Assembly), and each province has an administrator, appointed by the Union government for five years, and an elective council of not less than 25 members. Cape Town was made the seat of the legislative authority, and Pretoria that of the executive. Area, 473,100 square miles; pop. (1921) 6,928,580.

**Southampton**, a borough and seaport town of England, in the county of Hants, 18 miles N. W. of Portsmouth; is the most important mail packet station in the kingdom. Pop. (1927 Est.) 169,800.

**South Bend**, city and capital of St. Joseph county, Ind.; on the St. Joseph river and several railroads; 86 miles S. E. of Chicago; was named from a sharp bend in the river here; is a very important commercial center; noted for the variety and extent of its manufactures, which in 1914 had an output valued at \$31,180,000; contains the University of Notre Dame (R. C.), St. Mary's and St. Joseph's academies (R. C.), the Catholic Reference Library of America, Protestant and Roman Catholic hospitals, and Public Library. La Salle landed here in 1679. Pop. (1930) 104,193.

**South Bethlehem**, a city in Northampton county, Pa.; on the Lehigh river and the Lehigh Valley and other railroads; 57 miles N. W. of Philadelphia; is noted as the seat of Lehigh University; also has the

Bishopthorpe School, Training School for Nurses, and St. Luke's Hospital; and contains the Bethlehem Steel Works, large silk mills, zinc and iron plant, and foundry and machine shops. Pop. (1920) 24,486.

**South Carolina**, a State in the South Atlantic Division of the North American Union; bounded by North Carolina, Tennessee, Georgia, and the Atlantic Ocean; one of the original 13 States; number of counties, 46; capital, Columbia; area, 30,989 square miles; pop. (1920) 1,683,724; (1930) 1,738,765.

The State has a seaboard of 210 miles, and running W. from this is a low, sandy, and in places, marshy plain, from 80 to 100 miles wide. Beyond this plain is what is known as the middle country, low sand hills.

The total value of all farm property in 1925 was \$523,034,000. There were 10,639,000 acres of farm land of which 6,184,000 acres were improved. The crops for the year 1929 were as follows: Wheat, 768,000 bushels; corn, 23,321,000 bushels; oats, 11,016,000 bushels; peanuts, 7,350,000 pounds. There were 2,228,000 acres given to the growing of cotton, producing 845,000 bales valued at \$69,290,000. Tobacco was grown on 133,000 acres, and the total crop was 82,992,000 pounds, valued at \$13,279,000.

In 1929 of farm animals there were 34,000 horses, 174,000 mules, 143,000 milch cows, 266,000 other cattle, 15,000 sheep and 390,000 swine.

In 1927 there were 1,059 manufacturing plants, employing 108,992 wage earners, paying \$74,478,000 for wages and \$206,772,000 for raw materials and yielding products having a total value of \$358,334,000.

There are separate schools for the white and colored population. In 1928 it was estimated that there were 476,275 pupils enrolled in elementary and secondary schools, public and private. There were 26,556 students in public and private high schools and academies, 22 institutions for higher education enrolling 11,095 students.

There were over 5,000 religious organizations with about 600,000 members, and property valued at over \$15,000,000. The Baptist, Methodist, and Presbyterian bodies are the strongest.

## South Dakota

In 1929, there were 223 banks in the state with resources totaling \$225,578,000, demand deposits of \$73,008,000 and time deposits of \$93,010,000. National banks numbered 47 with resources of \$121,171,000; demand deposits of \$37,391,000 and time deposits, \$46,174,000.

In 1927, the total revenue of the State was \$17,464,000 and the expenditures, \$23,016,879. There was a state debt of \$29,566,742.

The governor is elected for a term of four years and receives a salary of \$5,000 per annum. Legislative sessions are annual and unlimited as to time. The legislature has 46 members in the Senate and 124 in the House. There are 7 representatives in Congress.

South Carolina was the first State to secede from the Union on Dec. 20, 1860. The first hostile act in the Civil War was the bombardment of Fort Sumter, in April, 1861. During the war the State suffered greatly, her harbors were blockaded, and much property was destroyed by the Federal soldiers on the great march under General Sherman. In 1865 the ordinance of secession was repealed and slavery abolished. A new constitution, establishing perfect equality between the white and the colored races, was adopted in 1869; and in the same year the ratification of the 15th Amendment to the Constitution of the United States being carried by a vote of 18 to 1 in the Senate and 88 to 3 in the House, the State was readmitted to representation in Congress.

**South Dakota**, a State in the North Central Division of the North American Union; bounded by North Dakota, Minnesota, Iowa, Nebraska, Wyoming, and Montana; admitted to the Union, Nov. 2, 1889; number of counties, 69; capital, Pierre; area, 77,615 square miles; pop. (1920) 636,547; (1930) 690,755.

The surface of the E. portion of the State is a level plain, including the great plateau of the Missouri and a similar plateau E. of the James river. W. of the Missouri river the surface is broken and contains the Black Hills, averaging 6,000 feet in height. The Black Hills contain some of the most valuable mineral deposits in the U. S.

In 1927 there were 322,181 fine

## South Dakota

ounces of gold produced valued at \$6,670,400; and 95,123 fine ounces of silver valued at \$53,935. The total value of all the minerals produced in this year was \$7,595,358.

In 1925 the value of all farm property was estimated at \$1,658,921,488. In 1929, the crops were as follows: Wheat, 30,247,000 bushels, corn, 112,085,000 bu., oats, 64,382,000 bu., barley, 37,296,000 bu., rye, 2,046,000 bu., flax-seed, 3,758,000 bu., and potatoes, 4,422,000 bu. In 1929, there were 586,000 horses, 20,000 mules, 528,000 milch cows, 1,666,000 other cattle, 2,282,000 swine and 1,067,000 sheep.

In 1928 there were over 5,000 elementary schools with 164,427 pupils and 8,067 teachers. For higher education there were 281 public high schools, with 26,088 pupils and 1,449 teachers.

The manufacturing industry in 1927 was represented as follows: 472 manufacturing plants, employing 5,551 wage earners, paying \$6,786,000 for wages and \$63,620,000 for raw materials and yielding products valued at \$83,001,000.

There were, in 1929, ninety-two National banks with total resources amounting to \$81,600,000, demand deposits of \$36,464,000 and time deposits of \$28,901,000. In savings banks and trust companies, deposits amounted to \$71,100,000.

The total revenue of the state in 1927 was \$16,305,867 and the expenditures, \$16,355,164. There was a state debt of \$15,014,772. The assessed valuation of property was \$1,805,466,033.

The governor is elected for a term of two years and receives a salary of \$3,000 per annum. Legislative sessions are biennial and limited to 60 days. The Legislature has 46 members in the Senate and 103 in the House. There are 3 Representatives in Congress.

The judicial arm of South Dakota's government consists of a Supreme Court of five justices elected to six-year terms and District Courts for each district, the judges of which are elected for terms of four years. State institutions are at Yankton, Gary, Sioux Falls, Redfield and Hot Springs.

The country now known as the

Dakotas was acquired by the United States as part of the Louisiana Purchase. In 1883 a convention to frame a State constitution for Dakota met at Sioux Falls. Dissensions between the people of the two sections of the Territory followed, and in 1888 it was decided to divide the territorial area into two States, under the names of North and South Dakota. The bill for their admission passed Congress and was signed by the President, Feb. 22, 1889.

**Southey, Robert**, an English poet; born in Bristol, England, Aug. 12, 1774. In 1801 he devoted himself to literature, and soon after took up his residence at Keswick, in Cumberland, where the remainder of his life was passed, he being thenceforth classed as one of the Lake poets. In 1807 he obtained a pension from the government, and on the death of Pye was appointed poet laureate. The latter years of his life were clouded by a mental imbecility which attended him to his death, March 21, 1843. His chief poems are: "Joan of Arc," "A Vision of Judgment," etc. Among his prose works are: "History of Brazil," "Life of Nelson."

**South Omaha**, a city in Douglas county, Neb.; on the Missouri river and nearly a dozen railroads; 4 miles S. of Omaha; is chiefly engaged with livestock and packing-house interests, having very extensive stock-yards and meat-packing and rendering plants. Since 1910 consolidated with Omaha.

**South Polar Explorations.** The South Pole has been sought less often than the North, mainly because of its remoteness. But some explorations were made by Ross (1842), the "Challenger" expedition (1874), and Borchgrevink (1900). Since 1900 vigorous attempts to reach the Pole have been made by German, British, Swedish, Norwegian, and Belgian expeditions, conducted in a systematic manner and resulting in the discovery of the Pole. The successful discoverer was the Norwegian, Roald Amundsen. He left Norway in June, 1909, on board the "Fram" with nineteen men. Nominally, he was bound for the North Pole; but, in fact, on reaching Madeira he changed his course, and nothing was heard from him after that until

March 27, 1911, when Lieut. Pennell, attached to Capt. R. F. Scott's Antarctic expedition, had come upon Amundsen's ship in what he called Framheim, about two miles distant (long. 164° W., lat. 78° 40' S.). Hence, on Feb. 10, 1911, they began to work their way South. On Dec. 6, 1911, they reached 88° 23', and established a station. Then came the dash to the Pole which was gained on Dec. 14, 1911. Captain Scott reached the Pole on Jan. 18, 1912, and on March 29 following he and four companions perished in a blizzard 11 miles from camp.

On Oct. 10, 1927, Commander Richard E. Byrd, U. S. N. headed an expedition into the antarctic regions for the general purpose of investigating the nature of the terrain of Antarctica, charting the sea-coasts and to penetrate areas hitherto unexplored. The complement of the expedition was four ships, three airplanes, eighty-two men and one hundred dogs. The cost was in excess of \$1,000,000, pledged by subscriptions, the most generous coming from John D. Rockefeller, Jr.

The expedition left Dunedin, New Zealand, the main base, on Dec. 2, 1927, arrived at the Ice Barrier, December 25, and established a permanent base at Little America on the Bay of Whales which is a part of Ross Sea, Jan. 6, 1929. This expedition was unique because of the fact that explorations, mapping, charting, etc., was carried on by airplane. The first long exploration flight of the expedition was made on Jan. 28, 1929. Commander Byrd flew over King Edward VII Land, as far as Scott's nunataks and the Alexandra mountains. In that flight he discovered an island and fourteen mountain peaks not theretofore recorded by geographers. It was the first flight by airplane that ever was made over the antarctic. Another channel separated the island, which is a mountainous formation, from what appeared to be another island of the same general characteristics. The fourteen peaks discovered on Jan. 28 extend north and south for a distance of thirty miles. The group was given the name of Rockefeller mountains, a designation bestowed in honor of John D. Rockefeller Jr., who was a liberal

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contributor to the fund that was raised for financing the Byrd expedition. Later observations established that the Rockefeller mountains constitute a group of isolated peaks beginning at about latitude 78 degrees 4 minutes south and longitude 155 degrees 15 minutes west; and thence extending in a crescent formation to latitude 77 degrees 35 minutes south and longitude 153 degrees 5 minutes west. The entire range contains some forty peaks of elevations varying between 500 and 2,000 feet above sea level. The range lies within territory claimed by Great Britain and designated as the Ross dependency. Lying west of the Rockefeller mountains was seen an area of many crevasses between the range and the Bay of Whales. Far to the east of the Rockefeller mountains was discovered another land area which the commander named Marie Byrd Land, in honor of his wife. There were other mountains seen at a distance of approximately seventy miles. Their highest peak was thought to be 8,000 feet above sea level.

Not any of the land lying to the eastward ever before was reported by any other explorer.

In March, there were further explorations into other uncharted territory that Commander Byrd named Scott Land, in honor of Capt. Scott, who had discovered it in 1912.

Commander Byrd made his flight over the south pole on Nov. 28-29, 1929. Bernt Balchen, who was a pilot on Commander Byrd's transatlantic flight in June, 1927, piloted the huge trimotored plane, Floyd Bennett, in which the flight was made. Harold June, a navy pilot and petty officer on leave for the expedition, was the radio operator. Capt. Ashley C. McKinley, an aerial photographer of St. Louis, was the fourth member of the flying party. When Capt. Roald Amundsen reached the south pole on Dec. 14, 1911, he had traveled by dog sled from a base on the Bay of Whales, a distance of 1,545 miles. His journey there and back to his base camp consumed 148 days. Commander Byrd made the round-trip flight in less than one day.

The supporting company of the ex-

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pedition, charged with the duty of establishing supply depots along the proposed line of exploration from Little America to the south pole, started from the base camp on Oct. 15, 1929, and laid its fourth depot on Nov. 1 at a point 81 degrees, 45 minutes south. That party was led by Arthur Waldron, a veteran trailmaker from the Yukon region of North America. The four supply depots were laid fifty miles apart. The geological party, under the leadership of Dr. Lawrence E. Gould of the University of Michigan, started from Little America a few days after the supporting party had left there. By dog sledge the geologists followed the trail of their predecessors along the line of the depots and from the fourth depot they digressed. The geologists planned to penetrate 200 miles beyond the fourth depot. The scientific work of the geologists was directed especially toward a careful survey of the Queen Maud range of mountains and also toward ascertaining the connection between that range and the land masses that were supposed to be north and east of the mountains, as Amundsen had judged them to be.

Amundsen's cache on Mount Betty at the foot of Axel Heiberg glacier was found by Dr. Gould, leader of the Byrd geological party. A note written by the famous Norwegian explorer and discoverer of the south pole was found in a can buried under a cairn, where it had been placed eighteen years prior, on his return journey.

On Feb. 20, 1930, the first ship of the expedition, the "City of New York" left Little America for Dunedin, New Zealand and the trip back to the United States. Commander Byrd was on board. When the fleet left North American ports, Byrd bore the title of Commander, but in recognition of his subsequent achievements his rank was advanced to that of rear-admiral.

On June 20, 1930, Rear-Admiral Byrd was the central figure in a demonstration of national significance that was held in the Auditorium at Washington, D. C. To an audience that included President Herbert Hoover and scores of officials from the various de-

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partments of the federal government the distinguished explorer gave a vivid account of his flight by airplane over the south pole and other flights of importance. In commemoration of the flight over the pole the National Geographic society had struck off a gold medal that was presented to the rear-admiral as a climax to the program in the Auditorium. President Hoover delivered a brief presentation address and pinned the medal to the coat of its honored recipient.

At Richmond, Va., on June 21, Rear-Admiral Byrd was presented with a gold-handled sword as a gift from the state of Virginia, of which he is a native. The Brooklyn Polytechnic institute conferred upon him the first honorary degree to be conferred upon any one in the history of that institution. On July 11, Rear-Admiral Byrd was entertained in Chicago as a guest of the local Press club.

Rear-Admiral Byrd then retired to his home in Virginia to gather his scientific data into comprehensive form and to write a book for popular tastes telling of his experiences. The latter was published under the title "Little America" and enjoyed a remarkably wide distribution.

On Nov. 1, 1929, Sir Hubert Wilkins, English explorer, led an aviation expedition into Antarctica for the summer season of 1929-30. His company consisted of four aviators and the party sailed southward from Montevideo, Uruguay, leaving a radio operator at that port to maintain communication with them when possible. His flight companions were: Parker Cramer of Clarion, Pa.; Al Sheesman of Winnipeg, Man., and Royal Porter, mechanic, of Detroit, Mich.

They arrived at Deception island Nov. 11, where Wilkins had left supplies in 1928. They established a new base, farther south, at Melchoir island, on Dec. 12, and made ready for surveys by airplane, mostly within the Weddell quadrant. On Dec. 19 they made a flight over the coast to Beascochea bay, and confirmed the position of the eastern coast as Wilkins had derived it from dead reckoning calculations made in 1928. A flight

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made on Dec. 31, apparently established the continuity of the antarctic continent for a distance of at least 300 miles westward of the mainland and proved that what had been theretofore mapped as Charcot Land is an island formation. On Jan. 5, 1930, the aviators returned to Deception island; and soon afterward sailed, aboard the supply ship William Scoresby, into the ice pack south of Peter I. island. On Feb. 1, they launched an airplane and flew southward, over the ocean, in search of land that had been supposed to exist there. A survey conducted in a flight of several hundred miles failed to disclose the expected land formation. The weather conditions becoming too unfavorable for making further observation, the party returned to Deception island and sailed from there on Feb. 22 aboard a Norwegian whaling vessel. The members of the expedition arrived in New York City, on March 19. Sir Hubert reported that the general coast line of Antarctica in the region he explored lies about 8 degrees south of the position ascribed to it by cartographers.

In 1929, Lars Christiansen, a noted "whaler" of Norway, organized and financed an antarctic expedition known as the Norvegia Expedition. This party returned in January, 1930, after completing a summer season of explorations in the antarctic regions, the principal feature of which was the discovery of new land in the Haakon VII. sea and occupying it in the name of the kingdom of Norway. The discoveries were made by airplane observation. Capt. Hjalmar Riiser-Larsen and Lieut. Lutzow Holm, two noted Norwegian pilots were the chief observers. The new land they mapped is situated between Coats Land in the Weddell quadrant of Antarctica and Enderby Land in the Enderby quadrant. Late in December of 1929, the aviators surveyed it from aloft and also made explorations on skis. After planting the flag of Norway there, they sailed eastward in the Norvegia in January, 1930.

By chance, the ship came into sight of the exploring ship Discovery, aboard which was Sir Douglas Mawson, who had sailed from Cape Town,



South Africa, in October, 1929 for the purpose of exploring the same general region of the antarctic in which the Norvegia had been operating. The Discovery expedition was in the interest of Great Britain. Radiogram reports from the two ships had raised uncertainty as to the priority of discoveries made by the two expeditions. The commanders of the two ships entered into communication and the vessels were brought close to each other. Capt. Riiser-Larsen boarded the Discovery and made a detailed report of his explorations to Sir Douglas Mawson, who conceded priority of occupation of the new possessions of Norway. Capt. Riiser-Larsen of the Norvegia Expedition was a member of the Ellsworth-Amundsen-Nobile expedition that flew over the north pole in May of 1926 in the dirigible Norge. He and Lieut. Holm participated in the search for members of Gen. Umberto Nobile's disastrous expedition in the arctic regions in June of 1928, after the wrecking of the dirigible Italia.

Sir Douglas Mawson's exploration expedition that sailed southward from Cape Town, South Africa, in October of 1929 aboard the S. S. Discovery, returned northward from the antarctic regions in March, 1930 and arrived at Adelaide, South Australia, on April 1. Among the scientific additions to geographical knowledge contributed by the expedition was a charting of 100 miles of coast line by which it was established that what is known as Kemp Land lies several degrees to the westward of the position that had been ascribed to it, and also that it joins Enderby Land. Both are British possessions bordering on the antarctic circle near the middle of the Enderby (or African) quadrant of Antarctica. Previous explorations had not disclosed whether or not they were a part of the same land formation or constituted separate islands. The oceanic area lying to their northward is one in which the whaling industry is pursued extensively.

These various explorative expeditions into the antarctic brought about some confusion as to priority of rights among various nations concerning new lands discovered but no diplomatic action was taken.

**South Sea**, the Pacific Ocean. The name was bestowed by Vasco Nunez de Balboa, in 1513, because from the spot where he obtained his first view of the great expanse of water, only its S. aspect was visible.

**South Sea Company**, a famous English commercial company, organized in 1711 for the purpose of paying the national debt, which then amounted to about \$50,000,000. The company agreed to assume the debt on the condition that the government should pay them \$3,000,000 for a specified number of years and give them a monopoly of trade with the South Seas. The profits were purely speculative, but the value of the stock was rapidly increased. In 1720 the company proposed to assume the entire national debt, which was about \$150,000,000, if the government so desired. In July of that year the shares of stock were quoted at 1000, and several of the leading members sold out. By the end of the year the company had collapsed, it having been a scheme for marketing stock at a fictitious value. The venture is commonly known as the "South Sea Bubble."

**South Shetlands**, a group of islands in the Antarctic Ocean S. of South America, on the Antarctic circle; originally discovered by a Dutch seaman named Dirk Cherrits in 1599. The islands are uninhabited.

**South-West Africa, German**, a former German colonial possession; surrendered to the British July 8, 1915; now South-West Africa Protectorate. See APPENDIX: *World War*.

**Soviet**, a system of government adopted by the Russian Socialist Federal Republic whereby organized industries and not localities form the unit of representation, or delegation. The Central Government is established on the great class organizations of the workers and peasants, the industrial unions, the factory committees, local workers' and peasants' councils and organizations of soldiers and sailors.

**Sow**, in founding, the main trough leading from the tap hole of a cupola or smelting furnace, and from which ramify the passages leading to the separate molds in casting, or to the shallow ditches in the floor which receive the pigs of cast metal; also the piece of

metal cast in this trough; an oblong mass of metal.

**Spada**, a French village on the Creue, an affluent of the Meuse, 4 miles N. of St. Mihiel, 15 miles S. E. of Verdun, in the zone of the great Verdun campaign in the World War. The population is only about 500. principally engaged in the manufacture of paper.

**Spada, Lionello**, Italian painter; born at Bologna, 1576; died at Parma, 1622. Among his works an altar-piece in the church of S. Domenico at Bologna is considered his best.

**Spagnoletto** ("little Spaniard"), a celebrated painter, whose true name was Giuseppe Ribera, or Ribeira; born at Xativa, in Valencia, 1588; died at Naples, 1656. He was a pupil of Caravaggio, and became the court painter.

**Spain**, a kingdom in the S. W. of Europe, forming with Portugal the great S. W. peninsula of Europe. It is separated from France on the N. E. by the chain of the Pyrenees, and is otherwise bounded by Portugal and the Atlantic and Mediterranean. In greatest breadth N. and S. it measures 540 miles; greatest length E. and W., 620 miles; total area, 194,783 square miles; pop (1927 Est.) 22,444,156. Spain retains practically none of her once magnificent colonies. The war with the United States deprived her of Cuba, Porto Rico, the Philippine and Sulu islands, and Guam; and a treaty with Germany, Feb. 8, 1899, of the Marianne (or Ladrone), Caroline, and Pelew islands. On Nov. 8, 1900, Spain sold the islands of Cagayan and Sibutu to the United States for \$100,000. Her last remaining colonies are in Africa with pop. 136,000.

The coast line is not much broken, but sweeps round in gentle curves, presenting few remarkable headlands, or indentations. The interior is considerably diversified, but its characteristic feature is its central tableland, which has an elevation of from 2,200 to 2,800 feet, and a superficial extent of not less than 90,000 square miles. It descends gradually on the W. toward Portugal; but on the E., toward the provinces of Catalonia and Valencia, it presents an abrupt steep or line of cliffs, with the character of an ancient sea margin. It is bounded on the N. by the Asturian and Can-

tabrian mountains, reaching an elevation of about 8,500 feet on the S. by the Sierra Morena. Besides these ranges there is the chain of the Pyrenees, which, though partly belonging to France, presents its boldest front to Spain and has its loftiest summits within it.

The whole country teems with mineral wealth, the minerals including in greater or less quantities gold, silver, quicksilver, lead, copper, iron, zinc, calamine, antimony, tin, coal, etc. The exploitation of the minerals has, however, in recent times been mostly accomplished by foreign capital, while most of the ore is exported to foreign countries in its raw state; the most important being, according to values coal, lead, iron, copper, iron pyrites, zinc, argentiferous lead, anthracite, mercury, lignite, and silver, in the order stated.

About one-sixth of the acreage is under wood; the more remarkable trees being the Spanish chestnut and several varieties of oak, and in particular the cork oak. Fruits are extremely abundant and include, in addition to apples, pears, cherries, plums, peaches and apricots, the almond, date, fig, orange, citron, olive and pomegranate; and in the lower districts of the S., the pineapple and banana. The culture of the vine is general, and great quantities of wine are made, both for home consumption and exportation. In 1927 there were 3,452,670 acres under vines, which yielded 10,145,804,460 lbs. of grapes, which, in turn, yielded 748,351,573 gals of ordinary white and red wines. The more important farm crops are wheat, rice, maize, barley, and legumes. Sardine packing and manufacturing of gold and silverware are also carried on.

The manufactures of Spain are not as a whole important, but considerable advances have been made in recent times. The most important industries are the manufacture of cotton, woollens and linens, cutlery and metal goods, paper, silk, leather, tobacco, and cigars, besides wine, flour, and oil. In 1923 there were 750 cotton and woollen mills, 144 paper mills and 29 glass-making factories. The chief articles of export are wine, fruits (especially oranges and raisins), cork, lead, iron ore, oils, soap, and

agricultural produce (including cattle and wool). Imports (1915), \$241,863,690; exports, \$252,736,005.

By the constitution of 1876 Spain was declared a constitutional monarchy, with executive power vested in the king, and the legislative power in the Cortes with the king. The Cortes consists of a Senate and Congress. The Senate is composed of three classes: Those who sit by right of birth or official position, members nominated by the crown (these two classes not numbering more than 180 together), and 180 elected by the largest taxpayers of the kingdom and certain corporate bodies. The Congress contains 431 deputies, elected by citizens of 25 years of age who have enjoyed full civil rights in any municipality for two years.

The people of Spain are of very mixed origin, the most ancient inhabitants, the Iberians (now represented probably by the Basques or Biscayans of the N. E.), being afterward mingled with Celts, Phœnicians, and Carthaginians, Roman colonists, Goths, Jews, and Arabs or Moors. Under the constitution the State binds itself to maintain the Roman Catholic religion, but a restricted liberty of worship is permitted to Protestants, of whom, however, there are very few.

Spain was first known to the Phœnicians, subsequently to the Carthaginians, and, in the 3d century B. C., to the Romans. A very eventful history followed, Spain at one time occupying a prominent part in the general affairs of Europe. Later, however, her prestige declined. In 1873 a republic was formed, with Castelar as its leading spirit, but it was soon brought to an end, and the throne was offered in 1874 to Alphonso, the young son of a former exiled Queen, Isabella. Alphonso XII. died in 1885; and on the birth of a posthumous son, May 17, 1886, the regency was intrusted to his widow, Christina. In 1902 this son came to the throne under the title of Alphonso XIII. His reign has been marked by the loss of Spain's colonial possessions, as a result of the Spanish-American War, and by industrial and anarchist disturbances. In October, 1903, an anarchist plot to blow up the Cortes was discovered and frustrated.

**Spalding, John Lancaster**, an American clergyman; born in Lebanon, Ky., June 2, 1840; was educated at St. Mary's College, Emmitsburg, Md., in Belgium, and in Rome; was chancellor of the diocese of Louisville, Ky., in 1871; was Roman Catholic Bishop of Peoria, Ill., in 1877-1908; created titular Archbishop of Scyphopolis in 1909. Died, 1916.

**Spalding, Martin John**, an American clergyman; born near Lebanon, Ky., May 23, 1810; was graduated at St. Mary's College in 1826, and in 1830 entered the College of the Propaganda in Rome; was ordained priest in 1834; became Roman Catholic Bishop of Louisville, Ky., in 1849, and Archbishop of Baltimore in 1864. In 1866 he was apostolic delegate and convened the Second National Council of the Roman Catholic Church at Baltimore; and was a prominent member of the Vatican Council (1870-1871). He was distinguished as a controversialist and polemical writer, and published many works. He died in Baltimore, Feb. 7, 1872.

**Spaniel**, the name given to several varieties or breeds of dogs. Their distinguishing characteristics are a rather broad muzzle, remarkably long and full ears, hair plentiful and beautifully waved, particularly that of the ears, tail, and hinder parts of the thighs and legs. The prevailing color is liver and white, sometimes red and white or black and white, and sometimes deep brown, or black on the face and breast, with a tan spot over each eye. The English spaniel is a superior and very pure breed. The King Charles' dog is a small variety of the spaniel used as a lapdog. The Maltese dog is also a small species of spaniel. The water spaniels, large and small, differ from the common spaniel only in the roughness of their coats, and in uniting the aquatic propensities of the Newfoundland dog with the fine hunting qualities of their own race. Spaniels possess a great share of intelligence, affection, and obedience, which qualities, combined with much beauty, make them highly prized as companions.

**Spanish-American War**, a war between the United States and Spain that began April 21, 1898, that date

## Spanish-American War

being named in an Act of Congress passed on April 25, declaring that a state of war existed. Spain issued a declaration of war on April 24. Hostilities ended with the signing of a protocol by the Secretary of State for the United States and M. Cambon, the French ambassador, acting for Spain, on Aug. 12, 1898. The final treaty of peace signed by the commissioners in Paris, Dec. 10, 1898, was signed by President McKinley Feb. 10, and by the Queen Regent of Spain March 17, 1899.

From its opening to its close the war lasted 114 days. In that time the United States land and sea forces destroyed two Spanish fleets, received the surrender of more than 35,000 Spanish soldiers, took by conquest the fortified cities of Santiago de Cuba, in Cuba, Ponce, in Porto Rico, and Manila, on the island of Luzon, in the Philippines, and secured control, pending negotiations of peace, of the entire Spanish possessions in the West Indies, the Philippines, and Guam of the Ladrone Islands. The Americans suffered no loss of ships or territory and but 279 killed and 1,465 wounded in battle, while the cost to Spain, aside from prisoners, ships, and lost territory, was 2,199 killed, and 2,948 wounded. The cost to the United States in money was \$141,000,000.

The principal events preceding and during the war and the dates on which they occurred are as follows:

Feb. 15—The United States battleship "Maine" was blown up in the harbor of Havana. According to the report of the Court of Inquiry appointed by the United States the explosion was due to an external mine.

April 20—President McKinley, authorized by Congress to intervene in Cuba, using the United States military and naval forces, sent an ultimatum to Spain. The Spanish minister at once left Washington, and the next day the United States minister left Madrid.

April 22—A proclamation was issued by the President blockading the principal ports of Cuba.

April 23—President McKinley issued a call for 125,000 volunteers to serve for two years.

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April 27—The batteries of Matanzas, Cuba, were shelled by Admiral Sampson's flagship, the "New York," with the monitor "Puritan" and the cruiser "Cincinnati."

April 29—The Spanish fleet, commanded by Admiral Cervera, consisting of the "Cristobal Colon," the "Almirante Oquendo," the "Maria Teresa," and the "Viscaya," and the torpedo boats "Furor," "Terror," and "Pluton," left the Cape Verde Islands for Cuba.

May 1—Commodore Dewey, commanding the United States Asiatic squadron, destroyed the entire Spanish fleet in Manila Bay, Philippines, without losing a man.

May 11—The "Wilmington," "Winslow," and "Hudson" engaged the Spanish batteries at Cardenas. Ensign Bagley and four of the "Winslow's" crew were killed. Maj.-Gen. Wesley Merritt was ordered to the Philippines as military governor.

May 12—A United States fleet, commanded by Rear-Admiral Sampson, bombarded the fortifications of San Juan, Porto Rico.

May 19—Admiral Cervera's fleet reached Santiago de Cuba, and a few days later was "bottled up" there by the "flying squadron" of Commodore Schley.

May 25—President McKinley called for 75,000 more volunteers. Twenty-five hundred United States troops sailed from San Francisco for Manila, several thousand more following at a later date.

May 31—The "Massachusetts," "Iowa," and "New Orleans" bombarded the fortifications at the mouth of Santiago harbor. They were bombarded again several times after Admiral Sampson took command of the fleet.

June 3—Assistant Naval Constructor Hobson with seven men ran the collier "Merrimac" to the mouth of Santiago harbor and sank her in the channel under the fire from the Spanish forts. Hobson and his men were taken prisoners.

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- June 10 — Six hundred marines were landed at Caimanera, Guantanamo Bay, Cuba, where sharp skirmishing continued for several days, several Americans being killed.
- June 12 — The 5th Army Corps, commanded by General Shafter, sailed from Tampa on 29 transports for Santiago, arriving off there on June 20.
- June 13 — President McKinley signed the War Revenue Bill, providing for the raising of revenues by a stamp tax and providing for a popular bond loan which was immediately subscribed.
- June 17 — A Spanish fleet under Admiral Camara left Cadiz for the Philippines, but returned after passing through the Suez Canal.
- June 22 — General Shafter's troops began disembarking at Baiquiri and Siboney, near Santiago.
- June 24 — Roosevelt's Rough Riders were attacked while advancing toward Santiago; 16 Americans were killed and 40 more wounded before the Spaniards were repulsed.
- July 1 — General Lawton took El Caney, near Santiago, and General Kent, commanding the 1st division of the 5th Army Corps, which included the 2d, 6th, 9th, 10th, 13th, 16th, and 24th infantry, and the 71st New York volunteers, took San Juan Hill after heavy fighting. Official reports gave the American losses 231 killed and 1,364 wounded and missing.
- July 3 — Admiral Cervera's squadron made a dash out of Santiago harbor, and every vessel was sunk or disabled by the American fleet. General Shafter demanded the surrender of Santiago. The seizure of Guam, in the Ladrone Islands, by the "Charleston" was reported at this time.
- July 7 — President McKinley signed resolutions passed by the Senate annexing the Hawaiian Islands to the United States, and the "Philadelphia" was ordered to Honolulu to raise the American flag.

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- July 17 — General Toral, in command of the Spanish troops at Santiago, General Linares being wounded, surrendered his forces and the E. portion of the province of Santiago de Cuba to General Shafter.
- July 20 — Gen. Leonard R. Wood, formerly colonel of the 1st Volunteer cavalry, was appointed military governor of Santiago.
- July 25 — United States troops, under Gen. Nelson A. Miles, landed at Guanica, Porto Rico, the town having surrendered to the "Gloucester."
- July 26 — Through the French ambassador, the government of Spain asked President McKinley on what terms he would consent to peace.
- July 28 — Ponce, the second largest city in Porto Rico, surrendered to General Miles, and he was received by the residents with joyful acclamations. Capture of several other towns, with little or no fighting, followed.
- July 30 — President McKinley's statement of the terms on which he would agree to end the war was given to the French ambassador. The President demanded the independence of Cuba, cession of Porto Rico and one of the Ladrone Islands to the United States, and the retention of Manila by the United States pending the final disposition of the Philippines by a joint commission.
- July 31 — United States troops engaged the Spaniards at Malate, near Manila, in the Philippines, and repulsed them, with some loss on both sides.
- Aug. 9 — The French ambassador presented to President McKinley Spain's reply, accepting his terms of peace.
- Aug. 12 — Protocols agreeing as to the preliminaries for a treaty of peace were signed by Secretary Hay and the French ambassador. United States military and naval commanders were ordered to cease hostilities. The blockades of Cuba, Porto Rico and Manila were lifted and hostilities ended.



## Spanish Fowls

**Aug. 13**—Manila surrendered after a combined assault by the army under General Merritt and Dewey's fleet.

**Spanish Fowls**, a breed of domestic poultry of Mediterranean origin; tall, with stately carriage; tarsi long; comb single, of great size, deeply serrated; wattles largely developed; earlobes and side of face white; plumage black, glossed with green. They are tender in constitution.

**Spanish Main**, a name given to the N. coast of South America from the Orinoco to Darien, and to the shores of the former Central American provinces of Spain contiguous to the Caribbean Sea. The name, however, is often popularly applied to the Caribbean Sea itself, and in this sense occurs frequently in connection with the buccaneers.

**Sparidae**, a family of fishes. They somewhat resemble the perches in form, the body being generally of an ovate form and covered with large scales. The Sparidae are mostly inhabitants of warm climates. They are edible, and some of them much esteemed. The sheep's head of the Atlantic coast of the United States is very highly prized.

**Sparks, Jared**, an American historian; born in Willington, Conn., May 10, 1789; was graduated at Harvard College in 1815; studied theology; and was ordained in the Unitarian Church in Baltimore in 1819. He took part in the doctrinal controversy with orthodox theologians; was chosen chaplain of the National House of Representatives in 1821; edited the "Unitarian Miscellany and Christian Monitor" in 1821-1823; conducted the "North American Review" in 1824-1831; and was the originator and first editor of the "American Almanac and Repository of Useful Knowledge." He was Professor of Ancient and Modern History at Harvard in 1839-1849; president of the college in 1849-1863; and the author of a large number of sermons, biographical and historical works, theological papers, etc., most notably "The Library of American Biography" and "Correspondence of the American Revolution." He died in Cambridge, Mass., March 14, 1866.

## Sparrow Hawk

**Sparrow**, a well-known bird of the Fringillidae, or finch family, commonly known as the European house-sparrow. It ranges over Europe, into the N. of Africa and Asia, and has been introduced into America and Australia. Sparrows are found even in crowded cities and in manufacturing towns, these differing only from country birds in being dirtier, and, if possible, more daring. Mantle of male brown, striped with black; head bluish-gray; two narrow bands, one white and the other rusty-yellow, on wings; cheeks grayish-white, front of neck black, under-parts light-gray. See FRINGILLIDÆ.



COMMON SPARROW HAWK.

**Sparrow Hawk**, in ornithology, extending across Europe, through Asia to Japan. The adult male is about 12 inches long, dark-brown on the upper surface, softening into gray as the bird grows old; the entire under surface is rusty-brown, with bands of a darker shade. The sparrow hawk is very destructive to small quadrupeds and young birds. The name is also applied to the American falcon, the Australian collared sparrow hawk, the European kestrel, and the New Zealand quail hawk.

**Sparta**, or **Lacedæmon**, a celebrated city of ancient Greece; capital of Laconia and of the Spartan State, and the chief city in the Peloponnesus; on the W. bank of the Eurotas river, and embraced a circuit of 6 miles. Sparta was a scattered city consisting of five separate quarters. Unlike Athens it was plainly built, and had few notable public buildings; consequently there are no imposing ruins to be seen here as in Athens, and the modern Sparta is only a village of some 4,000 inhabitants.

The Spartan State was founded, according to tradition, by Lacedæmon, son of Zeus. The most celebrated of its legendary kings was Menelaus. Shortly after their settlement in the Peloponnesus it is probable that the Spartans extended their sway over all the territory of Laconia, a portion of the inhabitants of which they reduced to the condition of slaves. They also waged war with the Messenians, the Arcadians, and the Argives, against whom they were so successful that before the close of the 6th century B. C. they were recognized as the leading people in all Greece.

Early in the following century began the Persian wars, in which a rivalry grew up between Athens and Sparta. This rivalry led to the Peloponnesian war, in which Athens was humiliated and the old ascendancy of Sparta regained. Soon after this the Spartans became involved in a war with Persia, and Athens, Thebes, Corinth, and some of the Peloponnesian States took this opportunity to declare war against them. This war, known as the Boeotian or Corinthian war, lasted eight years and increased the reputation and power of Athens. To break the alliance of Athens with Persia, Sparta, in 387 B. C., concluded with the latter power the peace known by the name of Antalcidas; and the designs of Sparta became apparent when she occupied, without provocation, the city of Thebes, and introduced an aristocratical constitution there. Pelopidas delivered Thebes, and the celebrated Theban war (378-363) followed, in which Sparta was much enfeebled. During the following century Sparta steadily declined, though one or two isolated attempts were made to restore its former greatness.

The principal of these was made by Cleomenes (236-222), but his endeavors failed, because there were then scarcely 700 of Spartan descent, and the majority of these were in a state of beggary. With the rest of Greece Sparta latterly passed under the dominion of the Romans in 146 B. C.

**Spartacus**, the leader of the Roman slaves in the great revolt which broke out about 73 B. C.; a Thracian by birth, who from a shepherd became a leader of a band of robbers when he was captured and sold to a trainer of gladiators at Capua. On the murder of his father by the Romans he had made an oath to wage war against Rome; and he formed a conspiracy to escape, and, when it was discovered, broke out with some 70 followers, with whom he made for the crater of Vesuvius, where hordes of runaway slaves soon joined him. He first overpowered and seized the arms of a force sent against him from Capua, next routed an army of 3,000 men under C. Clodius, and so passed from victory to victory, overrunning Southern Italy and sacking many of the cities of Campania, his numbers growing to 100,000 men. Spartacus, who failed to get support from the Italian communities, and from the first knew the real weakness of his position, strove to persuade his victorious bands to march N. to the Alps and disperse to their native regions; but they were intoxicated with victory, and saw glittering before their eyes all the plunder of Italy. Against his better judgment he continued the war, showing himself a consummate captain in the strategy and valor with which he routed one Roman consular army after another, and the policy by which for long he assuaged the jealousies and dissensions among his followers. At length in 71 M. Licinius Crassus received the command, and after some time of cautious delay forced Spartacus into the narrow peninsula of Rhegium, from which, however, he burst out through the Roman lines with a portion of his force. Crassus urged the Senate to recall Lucullus from Asia and Pompey from Spain, but meantime he himself pursued active hostilities against the dreaded enemy. Spartacus finding all hope at an end made a dash on Brun-

dusium, hoping to seize the shipping and get across the Adriatic, but was foiled by the presence of Lucullus, whereupon he fell back on the river Silarus, and there made a heroic stand against Crassus till he was cut down.

**Spartanburg**, city and capital of Spartanburg county, S. C.; on the Charleston & Western Carolina and other railroads; 93 miles N. W. of Columbia; is a popular mountain sport and health resort; has cotton mills and iron works; and is the seat of Wofford College (M.E.), Converse College for Women, and the State Institution for the Deaf, Dumb and Blind. Pop. (1930) 28,723.

**Spasms**, irregular and violent contractions of muscular structures, but less violent than convulsions. There are two varieties, tonic and clonic. Tonic spasms consist in contractions attended with rigidity or hardness of muscles. Clonic spasms consist in alternating contraction and relaxation.

**Spathe**, or **Spatha**, in botany, a large bract or floral leaf enveloping the immature inflorescence of some monocotyledons, and so guarding it from injury. The enclosed inflorescence often consists of an axis bearing numerous closely-packed sessile flowers, arranged in a spike-like manner—this is termed a spadix. The genus *Arum* offers a good example of spathe and spadix.

**Spatula**, a knife, with a broad, thin, flexible blade, used by druggists, color compounders, painters, etc., for spreading plasters and working pigments. In surgery, a flat instrument, angular or straight, for depressing the tongue.

**Spatularia**, or **Polyodon**, a genus of fishes belonging to the sturgeon tribe. They are remarkable for the form of their snouts, which are enormously long and leaf-like in form. The type of the genus is the paddle fish of the Mississippi.

**Spaulding, Solomon**, an American clergyman and writer; born in Ashford, Conn., in 1761. He was a Revolutionary soldier, a Congregational minister, and afterward a manufacturer of iron. While living at Conneaut, Pa. (1811-1812), he wrote a romance, "The Manuscript Found," published in 1812, purporting to have

been discovered in an ancient mound. This work was said to have furnished the basis for the "Book of Mormon"; in denial of which the original manuscript of Spaulding's romance was republished by the Mormons in 1885. He died in Amity, Pa., Oct. 20, 1816.

**Spavin**, a disease of horses which occurs under two different forms, both interfering with soundness. In young, weakly, or over-worked subjects the hock-joint is sometimes distended with dark-colored thickened synovia or joint oil. This is bog spavin. The second variety of spavin is the more common. Toward the inside of the hock, at the head of the shank bones, or between some of the small bones of the hock, a bony enlargement may be seen and felt. This is bone spavin. At first there is tenderness, heat, swelling, and considerable lameness; but as the inflammation in the bone and its investing membrane abates the lameness may entirely disappear, or a slight stiffness may remain.

**Spawn**, the eggs or ova of fishes, frogs, etc., from which, when fertilized by the males, a new progeny arises that continues the species. In the oviparous fishes with distinct sexes the eggs are impregnated externally, and arrive at maturity without the aid of the mother. The spawn being deposited by the female, the male then pours on it the impregnating fluid. In the ovoviviparous fishes sexual intercourse takes place, and the eggs are hatched in the uterus. Fishes exhibit a great variety in regard to the number of their eggs. In the spawn of a cod-fish, for example, no fewer than 3,500,000 eggs have been found. In general, before spawning, fish forsake the deep water and approach the shore, and some fish leave the salt water and ascend the rivers before spawning, and then return again.

**Speaker**, in politics, one who presides over a deliberative assembly, preserving order and regulating the debates; as, the Speaker of the House of Representatives; the Speaker of the House of Lords or Commons, etc. The Speaker of the House of Representatives is chosen by ballot from among the members upon the assembling of Congress, and occupies that office till

the expiration of the body by adjournment sine die. If an extra session be called there is no new election of speaker, the same officer presiding over the deliberations. The presiding officer in the Senate is styled the President of the Senate, and he is not elected by that body, the office being held ex-officio by the Vice-President of the United States.

**Speaking Trumpet**, an instrument for enabling the sound of the human voice to be conveyed to a greater distance. It is of the utmost use on shipboard in enabling the officers to convey orders during windy weather from one part of the deck to another, or to the rigging. The invention is ascribed to Sir Samuel Morland in 1670.

**Spear**, a weapon of offense, consisting of a wooden shaft or pole varying in length up to eight or nine feet, and provided with a sharp piercing point. The spear may be regarded as the prototype of the various forms of piercing weapons, such as the arrow, bolt, and dart, which are projected from bows, catapults, or other engines, and the javelin, assegai, and lance, held in or thrown by the hand. The longer and heavier spears and lances are mainly retained in the hand while in use, but there is no absolute distinction, and the throwing of a spear has in all ages been a form of offensive warfare. There can be no doubt that a weapon such as the spear is the most ancient as well as the most universal of warlike and hunting weapons.

**Spear, James**, an American manufacturer; born in Mauch Chunk, Pa., Feb. 17, 1827; removed to Philadelphia in 1848, and engaged in the manufacture of stoves. He made the first successful car heater, and invented a number of familiar devices, the principal one being the anti-clinker grate, which is now in general use. He took an active interest in the Blind Men's Home, was one of the incorporators of the Hayes Mechanics' Home, and aided many institutions, especially the University of Pennsylvania. He died in Wallingford, Pa., Jan. 30, 1902.

**Spearmint**, or **Spiremint**, in botany, a mint, with oblong, lanceolate, sub-acute, serrate leaves, and slender spikes of flowers. Found in watery places. It is used in cookery

as a sauce, and yields an aromatic and carminative oil, oil of spearmint.

**Spear Thistle**, a common thistle. It grows on waysides and in pastures. The leaves are downy beneath, and their points long and very sharp, and it has handsome heads of purple flowers.

**Spearwort**, a plant including the great spearwort and the lesser spearwort. The latter is an American plant, with lanceolate undivided leaves and yellow flowers, growing in wet localities.

**Species**, in biology, a somewhat ambiguous term used to denote a limited group of organisms, resembling each other, and capable of reproducing similar organisms, animal or vegetable, as the case may be. A species is defined by Haeckel as "the sum of all cycles of reproduction which, under similar conditions of existence, exhibit similar forms." Linnæus held that all species were the direct descendants from and had the characters of primevally created forms, and in this he was followed by those who accepted the first chapter of Genesis in a strictly literal sense. Buffon and Cuvier, leaving the question of origin on one side, held the distinguishing marks of a species to be similarity and capability of reproduction.

Darwin in his "Origin of Species" says: "I look at the term species as one arbitrarily given for the sake of convenience to a set of individuals closely resembling each other, and that it does not essentially differ from the term variety, which is given to less distinct and more fluctuating forms."

**Spectacle**, in the plural, a familiar and invaluable optical instrument used to assist or correct defects of vision.

**Spectacled Bear**, the sole representative of the bears in South America, inhabiting the high mountain forests of Chile and Peru. So called from the light colored rings round the eyes having exactly the appearance of a pair of spectacles; the rest of the face and body being black.

**Spectroscope**, an instrument for observing spectra, or for spectrum analysis. With a single glass prism,

the few most prominent lines in a solar spectrum may be seen by using a narrow slit to admit the light, which was the first great improvement made upon Newton's experiment, since a hole or wide slit gives confusion of effect. The second great improvement was to place a collimating lens behind the slit at its focal distance, whereby all the rays from the slit became a parallel bundle before passing through the prism. Finally a small telescope was mounted behind the prism to magnify and define the image thus obtained. The whole arranged on a table, with means of adjusting the collimating and eye tubes at the proper angles with the prism, forms the ordinary single-prism spectroscopic. Further prisms may be added to increase the dispersion, and as many as 11 have been used, but it is more usual to employ half the total number, and having sent the rays once through their lower portion, to reflect them back again through the upper ends, thus using each prism twice.

One of the largest spectroscopes in the world was completed in 1899 by Prof. John A. Brashear, an astronomer of Allegheny, Pa., for Dr. Hans Hauswaldt, a scientist of Magdeburg, Germany. This powerful concave grating instrument is 21 feet long and requires a room about 25 feet square in which to operate it. The grating used on the spectroscopic has a six-inch aperture and is ruled with 110,000 lines. So accurately are these lines ruled that none of them varies more than 3-1,000,000 of an inch from the correct position; and so powerful is the instrument that whereas an ordinary spectroscopic would show from 100 to 200 lines belonging to the spectrum of iron, this apparatus will reveal more than 2,000.

**Spectrum**, in optics, the colored image or images produced when the rays from any source of light are decomposed or dispersed by refraction through a prism.

**Spectrum Analysis**, in physics and chemistry, the determination of the chemical composition, the physical condition, or both, of any body of the spectrum of the light which it emits or suffers to pass through it, under certain conditions. For such

determinations an instrument is used called the spectroscopic, which employs the light passing through a very narrow slit, and, by using more prisms than one, disperses or separates the colors a great deal more than one prism alone can do.

**Speech**, spoken language; uttered sounds intended to convey meaning, and produced by the organs of voice, namely, the larynx, and the mouth and its parts, including the tongue and teeth. In speech two great classes of sounds are produced, these being usually known as vowels and consonants. Vowels are pronounced by sounds coming primarily from the larynx and passing with comparative freedom through the mouth cavity, though modified in certain ways; while consonants are formed by sounds caused by the greater or less interruption of the current of air from the larynx in the mouth. A single sound may convey an idea of itself and thus form a word, or several may be combined to form a word, and if the word is uttered by several distinct successive changes in position of the vocal organs it is a word of so many syllables. Words, again, are combined to form sentences or complete statements, and the aggregate of words used by any people or community in mutual intercourse forms its language.

**Speed, James**, an American lawyer; born in Jefferson co., Ky., March 11, 1812. The outbreak of the Civil War found Judge Speed an uncompromising Union man, and he took charge of the recruiting stations in Kentucky. He was a brother of Joshua F. Speed, the friend of Abraham Lincoln, and it was probably through this acquaintance with his brother that Lincoln came to select Speed for a place in his cabinet, though he had previously gained distinction as a lawyer and professor in the Law School of Transylvania University at Lexington. Speed was appointed Attorney-General in November, 1864, and was retained in the office by President Johnson after the assassination of Mr. Lincoln till July, 1866, when he resigned. He died June 25, 1887.

**Speed, John Gilmer**, an American journalist; born in Kentucky,



## Spelling Reform

Sept. 21, 1853; was graduated at the University of Louisville in 1869; became an engineer; joined the staff of the New York "World" in 1877; was managing editor in 1879-1883; traveled abroad in 1883-1888; and was editor of the "American Magazine" in 1889, and of "Leslie's Weekly" in 1896-1898. He died Feb. 2, 1909.

**Spelling Reform**, an attempt to simplify the present form of spelling certain words, advocated by several learned societies in the United States, England, and Canada, and especially promoted by the American Spelling Reform Association. In 1884 the latter body published a set of rules on which it based its proposed reform, and in 1906 Andrew Carnegie provided funds for the organization and work of a Simplified Spelling Board, composed of prominent scholars and business specialists. From time to time this Board has published its recommendations for changes, which now amount to over 300.

**Spencer, Herbert**, an English philosopher; born at Derby, 1820; educated by his father, a teacher of mathematics, and his uncle, a clergyman; was apprenticed as a civil engineer, and worked several years on railways; contributed several professional papers to the Civil Engineers' and Architects' Journal, besides a series of letters in 1842, on the Proper Sphere of Government, to the Non-conformist; became in 1848 sub-editor to the Economist; published Social Statics, and Principles of Psychology. About the year 1859 he projected his scheme of philosophy, based on the principle of evolution in its relation to life, mind, society, and morals. This great scheme he completed before his death. It comprises: "First Principles," one vol.; "Principles of Biology," two vols.; "Principles of Psychology," two vols.; "Ceremonial Institutions," "Political Institutions," "Ecclesiastical Institutions," in "Principles of Sociology," and "Principles of Ethics." His other works include "Education;" "Essays: Scientific, Political, and Speculative;" "Classification of the Sciences;" "The Study of Sociology;" "Data of Ethics;" and "Man versus the State." Besides his own work he published eight parts of an elaborate

## Spencer

"Descriptive Sociology," compiled by other writers, but classified and arranged by himself. Spencer will not be forgotten for a style distinguished by unity and great lucidity. He died Dec. 8, 1903.

**Spencer, Jesse Ames**, an American educator; born in Hyde Park, N. Y., June 17, 1816; was appointed Professor of Greek in the College of the City of New York in 1869, and was the author of "History of the United States," etc. He died Sept. 2, 1898.

**Spencer, Platt Rogers**, an American penman; born in East Fishkill, N. Y., Nov. 7, 1800; taught his first writing class in 1815; was employed as a clerk and bookkeeper in 1816-1821; studied law in 1821-1824; and subsequently taught in the common schools. Later he was county treasurer for 12 years, and in 1848 published a system of penmanship under the title "Spencer and Rice's System of Business and Ladies' Penmanship," which was followed by his "Spencerian, or Semi-Angular Penmanship." Through his work and influence as a teacher he was instrumental in founding "business colleges" in the United States, and in promoting their growth and development. He died in Geneva, O., May 16, 1864.

**Spencer, William Loring** (because of her masculine name called "The Major"), an American author, second wife of Gen. George E. Spencer; born in St. Augustine, Fla. She wrote: "Salt Lake Fruit," "Story of Mary," etc.

**Spenser, Edmund**, an English poet; born in London, England, probably in the year 1552. He entered as a sizar at Pembroke Hall, Cambridge, in 1569, became B. A. in 1573, and M. A. in 1576. In 1569 appeared a book "devised" by S. John Vander Noodt, the title of which begins, "A Theater wherein he represented as well the Miseries and Calamities that follow the Voluptuous Worldlings, as also the greater joys and Pleasures which the Faithfull do enjoy." This volume was prefaced by the first six of "Petrarch's Visions" done into verse styled "Epigrams," and 15 "Sonnets," which were published subsequently among Spenser's works, in which publications they are said to have been "formerly translated."

In 1589 he was visited by Raleigh at Kilcolman Castle, Cork county, where his friends obtained for him from Queen Elizabeth 3,028 acres of land, the grant, which is extant, being dated Oct. 26, 1591. The "Faerie Queene" was already begun in 1580, and three books were finished by the close of the year 1589. Raleigh was so much delighted with what Spenser showed him of his poem, that he carried him over to England, where it was printed. Spenser was also introduced to Elizabeth, who, a year after the publication of the "Faerie Queene" (1590), made him virtually her laureate with a pension of \$250 a year. In the same year he returned to Ireland, and no sooner was his back turned on London than the publisher of the "Faerie Queene" gathered all scraps of his minor poems together and published them in a volume entitled "Complaints," which include "The Ruines of Time," "The Teares of the Muses," "Vergil's Gnat," "Mother Hubbard's Tale," "The Ruines of Rome by Bel-lay," "Munopotomos, or the Tale of the Butterflie," "Visions of the World's Vanitie," "Bellayes," and "Petrarches Visions."

In 1592 he married a lady named Elizabeth, to whom his "Amoretti," or "Sonnets" (1595), are addressed, and who is celebrated in his "Epithalamium," "the most perfect of all his poems, the most beautiful of all bridal songs." At the same time as the "Amoretti" appeared "Colin Clout comes Home Again"; and probably at the close of the same year Spenser returned to England to superintend the publication of books IV.-VI. of the "Faerie Queene." During his stay in England he wrote the "Hymns to Heavenly Love and Heavenly Beauty" and the "Prothalamium," his last works. In 1597 he returned to his quiet life at Kilcolman, but in the next year Tyrone's rebellion forced him to flee, for he represented the government as clerk of the council of Munster, and was sheriff-designate of Cork. His house was burnt, and a child perished in the flames, according to a statement made by Ben Jonson to Drummond of Hawthornden. Spenser reached England brokenhearted, and died, Jan. 16, 1599, in a tavern in King street, Westminster, "for lack of bread," as

Jonson told Drummond. This, however, must have been an exaggeration, for though Spenser returned "inops," according to Camden, he was still in receipt of a pension, and must still have had influential friends. He was buried near Chaucer in Westminster Abbey.

**Spermaceti**, a neutral, inodorous, and nearly tasteless, fatty substance, extracted from the oily matter of the head of the sperm whale by filtration and treatment with potash-lye. Spermaceti was formerly given as a medicine; now it is chiefly employed externally as an emollient and in the preparation of a blistering paper.

**Spermatozoa**, the microscopic animalcule-like bodies developed in the semen of animals, each consisting of a body and a vibratile filamentary tail, exhibiting active movements comparable to those of the ciliated zoospores of the algæ, or the ciliated epithelial cells of animals. Spermatozoa are essential to impregnation.

**Sperm Oil**, the oil of the spermaceti whale, which is separated from the spermaceti and the blubber. This kind of oil is much purer than train oil, and burns away without leaving any charcoal on the wicks of lamps. In composition it differs but slightly from common whale oil.

**Sperry, Elmer Ambrose**, American engineer and inventor, born at Cortland, N. Y., Oct. 12, 1860. Founder Sperry Electric Co., Sperry Electric Railway Co.; most noted inventions; gyro compass, aeroplane and ship stabilizer, high intensity search light, compound internal combustion engine, fire control apparatus. Died in Brooklyn, June 16, 1930.

**Spezia**, a seaport town in Italy; 50 miles E. S. E. of Genoa, on the Gulf of Spezia, which here forms an admirable harbor. It is a great Italian naval station, and has a marine arsenal, cannon-foundries, various yards, docks, and basins, and is defended by two forts. Pop. 65,612.

**Sphagnum**, a genus of mosses, widely diffused over the earth in temperate climates, readily recognized by their pale tint, fasciculate branchlets, and apparently sessile globose capsules. They are aquatic plants, and constitute the great mass of our bogs in swampy and moory districts.

**Speyer, James**, an American banker; born in New York city, July 22, 1861; was educated in Germany, and entered the family's banking house at Frankfort-on-the-Main in 1883; served in the branch houses in Paris and London; returned to New York city and became head of the Speyer group of banking houses, and an official in many financial concerns. He was a liberal promoter of educational activities, and in 1905 established the Theodore Roosevelt Professorship of American History and Institutions at the University of Berlin.

**Speyers, Arthur Bayard**, an American naval officer; born in New York city, Aug. 15, 1846; was graduated at the U. S. Naval Academy in 1868; was on blockade duty off Cuba in the Spanish American War; promoted to rear-admiral Jan. 11, 1905.

**Sphegidae**, or **Sphecidae**, a family of hymenopterous insects, winged in both sexes, and much resembling bees or wasps in general appearance.

**Sphenodon**, a peculiar genus of lizards, regarded as forming a family by itself. The only known species is a native of New Zealand, and though once abundant is now being rapidly thinned. Of late it has become the favorite food of the pig and is eaten by man. It frequents rocky islets, living in holes in the sand or among stones.

**Sphenopteris**, a genus of ferns, having the leaves twice or thrice-pinnate; the leaflets not adhering to the rachis by their whole base, but resembling small wedges reversed, the nervures dividing pinnately from the base. From the Devonian to the Wealden. In the Carboniferous rocks there are 34 species, and in the Jurassic 17.

**Sphere**, in astronomy, a term formerly applied to any one of the concentric and eccentric revolving transparent shells in which the heavenly bodies were supposed to be fixed, and by which they were carried so as to produce their apparent motions. The word now signifies the vault of heaven, which to the eye seems the concave side of a hollow sphere, and on which the imaginary circles marking the positions of the equator, the ecliptic, etc., are supposed to be drawn. It is that portion of limitless space which the eye is powerful enough to penetrate,

and appears a hollow sphere because the capacity of the eye for distant vision is equal in every direction.

In geometry, a solid or volume bounded by a surface, every point of which is equally distant from a point within, called the center. Or it is a volume that may be generated by revolving a semicircle about its diameter as an axis.

In logic, the extension of a general conception; the individuals and species comprised in any general conception. The doctrine of the sphere is the application of geometrical principles to geography and astronomy. An oblique sphere, or spherical projection, is the projection made on the plane of the horizon of any place not on the equator or at the poles.

**Spheg**, a genus of hymenopterous insects, closely allied to the true wasps. The spheg wasps are solitary in habit, and there are no workers as in the social forms. The female hollows out, at the end of a long passage, three or four chambers, in each of which she deposits an egg and a store of food for the larva she will never see. The food consists of grasshoppers or other insects. Four paralyzed insects are placed in each chamber, which is sealed up as it is finished. When all are full the mouth of the passage is also closed, and the nest is abandoned.

**Sphincter**, in anatomy, a name applied generally to a kind of circular muscles, or muscles in rings, which serve to close the external orifices of organs, as the sphincter of the mouth, of the eyes, etc., and more particularly to those among them which, like the sphincter of the anus, have the peculiarity of being in a state of permanent contraction, independently of the will, and of relaxing only when it is required that the contents of the organs which they close should be evacuated.

**Sphingidae**, the hawk moth family comprising the most robust and powerful insects in the order, and generally distinguished by their strength of flight and large size.

**Sphinx**, a Greek word signifying "strangler," applied to certain symbolical forms of Egyptian origin, having the body of a lion, a human or an animal head, and two wings. Various other combinations of animal forms

## Sphinx Baboon

have been called by this name, though they are rather griffins or chimæras. Human-headed sphinxes have been called andro-sphinxes; that with the head of a ram, a criosphinx; and that with a hawk's head, a hieracosphinx. The form when complete had the wings added at the sides; but these are of a later period and seem to have originated with the Babylonians or Assyrians. In Egypt the sphinx also occurs as the symbolical form of the monarch considered as a conqueror, the head of the reigning king being placed on a lion's body, the face bearded, and the usual head dress. Thus used, the sphinx was generally male; but in the case of female rulers that figure has a female head and the body of a lioness.

The most remarkable sphinx is the Great Sphinx at Gizeh (Giza), a colossal form hewn out of the natural rock, and lying about a quarter of a mile S. E. of the Great Pyramid. It is sculptured out of a spur of the rock itself, to which masonry has been added in certain places to complete the shape, and it measures 172 feet 6 inches long by 56 feet high.



THE SPHINX NEAR GIZEH.

**Sphinx Baboon**, a large species from the West of Africa. They are good-tempered and playful when young, but become morose and fierce as they grow older. They bear confinement well, and are common in menageries.

**Sphinx Moth**, a species of moth deriving its popular name from a supposed resemblance which its caterpillars present when they raise the fore part of their bodies to the "sphinx" of Egyptian celebrity. The sphinx moth is common in some parts of the United States.

## Spider

**Spica Virginis**, or **Spica Azimuth**, in astronomy, a star of the first magnitude, Alpha Virginis, in the constellation Virgo. If a line be drawn through two opposite angles of the rectangular figure in the Great Bear, and prolonged with a slight curve, it will pass through Spica Virginis.

**Spices**, aromatic and pungent vegetable substances used as condiments and for flavoring food. They are almost exclusively the productions of tropical countries. In ancient times and throughout the Middle Ages all the spices known in Europe were brought from the East; and Arabia was regarded as the land of spices, but rather because they came through it or were brought by its merchants than because they were produced in it, for they were really derived from farther E. They owe their aroma and pungency chiefly to essential oils which they contain. They are yielded by different parts of plants; some, as pepper, cayenne pepper, pimento, nutmeg, mace, and vanilla, being the fruit or particular parts of the fruit; while some as ginger, are the root stock; and others, as cinnamon and cassia, are the bark. Tropical America produces some of the spices, being the native region of cayenne pepper, pimento, and vanilla; but the greater number are from the East.

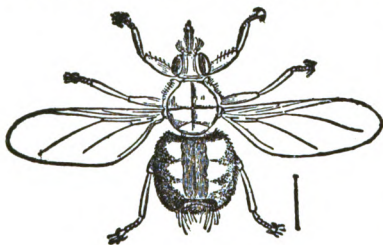
**Spider**, in zoölogy, the popular name of any individual of Huxley's Araneina. The species are very numerous and universally distributed, the largest being found in the tropics. The abdomen is without distinct divisions, and is generally soft and tumid; the legs are eight in number, seven-jointed, the last joint armed with two hooks usually toothed like a comb. There are two or four pulmonary sacs and a tracheal system; eyes generally eight in number; no auditory organs have been discovered. Their most characteristic organ is the arachnidium, the apparatus by which fine silky threads—in the majority of the species utilized for spinning a web—are produced. In the common garden spider more than 1,000 glands, with separate excretory ducts, secrete the viscid material of the web. These ducts ultimately enter the six prominent arachnidial mammillæ, projecting



## Spider Fly

from the hinder end of the abdomen, and having their terminal faces beset with minute arachnidial papillae, by which the secretion of the gland is poured out.

By means of these silky threads, spiders form their dwellings and construct ingenious nets for the capture of their prey; these threads serve also as a safeguard against falling, and as a means of support from one elevated object to another, being thrown out as a sort of flying bridge. The webs are in high repute for stanching blood; the threads are employed for the cross lines in astronomical telescopes, and have been made into textile fabrics as articles of curiosity. Spiders are extremely pugnacious, and in their combats often sustain the loss of a limb, which, like the Crustaceans, they have the power of reproducing. The males are smaller than the females, which they approach with great caution, as they run great risk of being devoured, even at the time of impregnation. The eggs are numerous, and usually enveloped in a cocoon or egg case; the young undergo no metamorphosis.



SPIDER FLY.

**Spider Fly**, a genus of dipterous insects, chiefly allied to the forest fly. The insects are parasitical on birds, never on quadrupeds. One species frequently infests the common fowl, the black-cock, and other birds. It is greenish-yellow, with smoke-colored wings.

**Spider Monkey**, a general name applied to many species of platyrrhine or New World monkeys, distinguished by the great relative length, slenderness, and flexibility of their limbs, and by the prehensile power of their tails. A familiar species is the cha-

## Spiking

meck, which occurs abundantly in Brazil. The body is about 20 inches, the tail 2 feet long, and the color is a general black. The coaita, another typical species, has an average length of 12 inches; the tail measures over 2 feet long, and the fur is of a glossy black hue.



SPIDER MONKEY.

**Spike**, in botany, that kind of inflorescence in which sessile flowers, or flowers having very short stocks, are arranged around an axis, as in the greater plantain, common vervain, common lavender, and some species of sedge. In rye, wheat, barley, darnel, and many other grasses there is a sort of compound spike—i. e., the flowers or fruits are arranged together in spikelets on short stalks, which again surround the top of the culm in the form of a spike. The catkin, the spadix, and the cone may be regarded as varieties of the spike.

**Spiking**, the operation of quickly rendering a muzzle-loading gun useless, resorted to by troops compelled to abandon their own pieces or unable to remove those of the enemy which they have captured. The process consists in driving a cast iron spike into the vent or touch hole and then breaking it off short with a hammer. A spiking party of artillerymen always accompanied a storming party. To render a spiked gun again serviceable it was generally necessary to drill a fresh vent. Breech loading guns are best rendered temporarily unservice-



## Spinach

able by removing part of the breech mechanism.

**Spinach**, or **Spinage**, a whole-some though somewhat insipid vegetable. It is a native of Siberia. The fleshy leaves are somewhat triangular in outline, deep green in color, and for table are generally served boiled and chopped, or as an ingredient in soups and stews.

**Spinal Cord**, the name given in anatomy to the great cord or rod of nervous matter which is inclosed within the backbone or spine of vertebrates. The spinal cord in man, which is from 15 to 18 inches long, has direct connection with the brain by means of the medulla oblongata, and passes down the back till it terminates in a fine thread at the level of the first lumbar vertebra. Lodged in the bony vertebræ it varies in thickness throughout, and like the brain is invested by membranes called respectively pia mater and dura mater. Situated between these two are the delicate layers of the arachnoid membrane, inclosing a space which contains the cerebro-spinal fluid. Besides these protective coverings there is also a packing of fatty tissue which further tends to diminish all shocks and jars. The spinal nerves, to the number of 31 on each side, pass out from the cord at regular intervals, pierce the dura mater, escape from the backbone, and ramify thence through the soft parts of the body. In its functions the spinal cord forms a tract along which sensory impressions may pass to the brain, and along which motor impulses may travel to the muscles. It is besides a great reflex center.

**Spinal Nerves**, the name applied to the paired nerves which arise from the spinal cord, and which are distributed to the various parts of the body. The spinal nerves are so named in contradistinction to the cranial nerves, or those which originate from the brain itself. Thirty-one pairs of spinal nerves arise from the spinal cord of man. They pass from the spinal cord and spine through the intervertebral foramina, or openings between the bodies of the vertebræ.

**Spine**, the term applied to the backbone of a vertebrate animal, and so called from the thorn-like processes of

## Spinning Jenny

the vertebræ. The human vertebral column is composed, in the child, of 33 separate pieces, but in the adult the number is only 26, several pieces having become blended together. These separate bones are arranged one on the top of the other, with a layer of gristle between, which helps to unite them, while this union is completed by partially movable joints and strong fibrous ligaments.

**Spine**, in botany, a sharp process from the woody part of a plant. It differs from a prickle, which proceeds from the bark. A spine sometimes terminates a branch, and sometimes is axillary, growing at an angle formed by the branch or leaf with the stem. The wild apple and pear are armed with spines; the rose, bramble, gooseberry, etc., are armed with prickles. The term is applied in zoölogy to a stout, rigid, and pointed process of the integument of an animal, formed externally by the epidermis and internally of a portion of the cutis or corresponding structure.

**Spinnet**, in music, a musical stringed instrument resembling the harpsichord, and, like that instrument, now superseded by the pianoforte. Each note had but one string, which was struck by a quilled jack acted on by one of the finger keys. The strings were placed horizontally, and nearly at right angles to the keys; and the general outline of the instrument resembled that of a harp laid in a horizontal position, on which account the spinnet, when first introduced, was called the couched harp.

**Spinner, Francis Elias**, an American financier; born in Mohawk, N. Y., Jan. 21, 1802; was elected to Congress in 1854 as an Anti-slavery Democrat, being twice reelected, serving till 1861; from 1861-1875 he was United States Treasurer, and handled the immense receipts and disbursements of the Civil War without the loss of a cent of the nation's money. Died, Jacksonville, Fla., Dec. 31, 1896.

**Spinning**, the art of combining animal and vegetable fibers into continuous threads fit for the process of weaving, sewing, or ropemaking.

**Spinning Jenny**, the name given by James Hargreaves to the spinning machine invented by him in 1767.

**Spinoza, Baruch, or Benedict,** a celebrated Dutch-Hebrew philosopher; born in Amsterdam, Nov. 24, 1632; died Feb. 21, 1677. Carefully educated as a Hebrew, he aroused not only the antagonism of his race, which excommunicated him, but also that of the Catholics, by his advanced, liberal thought, and plea for liberty of speech in philosophy. He led a life of isolation, and ceased printing his works, of which a complete edition was published in Amsterdam after his death. The central conception of his system of philosophy is, that God, who is the inherent cause of the universe, is one absolutely infinite substance, of which all the several parts which we recognize are but finite expressions; that man, being but a part of this greater whole, has neither a separate existence nor a self-determining will; but that he can, by knowledge and love, so far control his passions as to enter into the joy which springs from this idea of an all-embracing God.

**Spirit, an immaterial intelligent substance or being;** vital or active principle, essence, force, or energy, as distinct from matter; life or living substance considered apart from material or corporeal existence; as, the soul of man, as distinguished from the body wherein it dwells. Hence, a ghost; a specter; a supernatural apparition or manifestation; also, sometimes, an elf; a fay; a sprite. Also, real meaning; intent; in contradistinction to the letter or to formal statement; and characteristic quality, particularly such as is derived from the individual genius or the personal character; as, the spirit of the law.

In chemistry, a name generally applied to fluids, mostly of a lighter specific character than water, and obtained by distillation. But in a stricter sense the term spirit is understood to mean alcohol in its potable condition, of which there are very numerous varieties deriving their special characters from the substances used in their production, as brandy, rum, whisky, gin, arrack, etc.

In theology, the Spirit, or Holy Spirit, the Holy Ghost; the Spirit of God, or the third person of the Trinity. The spirit also denotes the human spirit as animated by the Divine Spirit.

**Spirit Level, an instrument used for determining a line or plane parallel to the horizon, and also the relative heights of two or more stations.** It consists of a glass tube nearly filled with alcohol, preferably colored. The remaining space in the tube is a bubble of air, and this occupies a position exactly in the middle of the tube when the latter is perfectly horizontal. The tube is mounted on a wooden bar, which is laid on a beam or other object to be tested; or it is mounted on a telescope or theodolite, and forms the means of bringing these instruments to a level, the slightest deviation from the horizontal position being indicated by the bubble rising toward the higher end of the tube. Spirit level quadrant, an instrument furnished with a spirit level and used for taking altitudes.

**Spiritualism, the term used in philosophy to indicate the opposite of materialism, and the belief in the existence and life of the spirit apart from, and independent of, the material organism, and in the reality and value of intelligent intercourse between spirits embodied and spirits disembodied.** The belief in spirit manifestations has long obtained, but in its limited and modern form spiritualism dates from the Fox sisters in 1848. In this year a Mr. and Mrs. Fox, who lived with their two daughters at Hydeville, N. Y., were disturbed by repeated and inexplicable rappings throughout the house. At length it was accidentally discovered by one of the daughters that the unseen "raper" was so intelligent as to be able to reply to various pertinent questions, and so communicative as to declare that he was the spirit of a murdered peddler. When this discovery was noised abroad a belief that intercourse could be obtained with the spirit world became epidemic, and numerous "spirit circles" were formed in various parts of America. The manifestations thus said to be received from the spirit were rappings, table turnings, musical sounds, writings, the unseen raising of heavy bodies, and the like. These lower manifestations of spiritualism are said to be given to the nonbeliever as evidence that the facts on which the spiritualistic beliefs are based are

realistic. Part of the peculiarity of these phenomena was that they were always more or less associated with a medium, who was supposed to have an organization, sensitively fitted to communicate with the spirit world. Mediums are usually persons who see visions and hear voices, and show evidence of their power even in childhood. In the United States, the believers in spiritualism are very numerous, and have many newspapers, magazines, and books to explain and enforce their belief. In 1884 the London Spiritualist Alliance was founded, and was incorporated in 1896. The chief work of the society has been to maintain and expound the principles of spiritualism. There are local organizations in almost all towns of any importance. The belief of spiritualism is that our existence in this world is but one stage in an endless career; that the whole material world exists simply for the development of spiritual beings, death being but a transition from this existence to the first grade of spirit life; that our thoughts and deeds here will affect our conditions later; and that our happiness and progress depend wholly on the use we make of our opportunities and faculties in this plane. Among spiritualists are found persons of every belief, from the Roman Catholic to the Unitarian, as it does not modify the creeds or dogmas of any sect. In France is a class of spiritualists who believe existence of the soul is alternating spirit life and reincarnation.

**Spitz, or Pomeranian Dog,** the result of a cross from the Eskimo dog, the native dog of the Arctic regions. The spitz is about the size of the spaniel, with a sharp-pointed face and an abundant white coat sometimes of great beauty. Other colors are known, including black. It is comparatively common in the United States.

**Spitzbergen,** a group of three large and several small islands in the Arctic Ocean, nearly equidistant between Greenland and Nova Zembla, the largest being West Spitzbergen and Northeast Land. Very little is known of their interior, but the coasts have been repeatedly explored, and present immense glaciers and mountain chains. Spitzbergen has long

been a "No Man's Land." No nation has ever established sovereignty over it. Russia, Norway, and Sweden claim rights there, but it is due wholly to American capital and energy that the great natural resources of the group are now being developed. The archipelago, including Bear island, became a political dependency of Norway by treaty signed Feb. 16, 1920.

**Spleen,** one of the abdominal glands at the left side of the body, close to the stomach and pancreas. It is somewhat oval-shaped and concave internally, where it is divided by a fissure named the ilium. Here blood-vessels enter and leave the organ, and the nerves also enter. The upper extremity of the spleen is thick; the lower, which is in contact with the colon, is more pointed. The average length of the spleen is 5 inches, its breadth 3 or 4 inches, and its thickness 1 or 1½ inches. Its weight is about seven ounces. The spleen is a meshwork of fibers or trabeculae, supporting a soft matter named the spleen pulp. Microscopically examined, the latter is found to consist of blood corpuscles in a state of disintegration. The spleen substance also includes certain small round bodies, attached to the sheaths of the blood-vessels of the spleen, and named Malpighian or splenic corpuscles. During digestion the spleen increases in size, but under starvation it decreases, and the Malpighian bodies disappear. This organ may be excised from man and other animals without impairing the health, hence we may conclude that its functions are capable of being carried on by some other glands. In all probability the spleen is one of the blood glands, of which the thymus and thyroid glands, and indeed the whole lymphatic system, are examples. In the spleen the blood corpuscles undergo some changes; possibly the organ may be the seat of manufacture of red blood corpuscles, as well as of their final disintegration.

**Splint, or Splent,** a bony enlargement on a horse's leg, between the knee and fetlock, usually appearing on the inside of one or both fore legs, frequently situated between the large and small cannon bones, depending on concussion, and most common in young

## Splint

horses that have been rattled rapidly along hard roads before their bones are consolidated.

**Splint**, in surgery, a mechanical contrivance for keeping a fractured limb in its proper position, and for preventing any motion of the ends of the broken bone; they are also employed for securing perfect immobility of the parts to which they are applied in other cases, as in diseased joints, after resection of joints, etc.

**Spofford, Ainsworth Rand**, an American librarian; born in Gilmanston, N. H., Sept. 12, 1825. He was a journalist to 1861, when appointed chief assistant librarian of the Congressional Library, and was librarian in 1864-1897, when he became again chief assistant. He was famed for a comprehensive and accurate knowledge of books and their contents, and besides many essays and articles on historical, literary, and scientific subjects for the current journals published: "The American Almanac," for several years; and, with others, edited "Library of Choice Literature," "Library of Wit and Humor," etc. He died Aug. 11, 1908.

**Spofford, Harriet Prescott**, an American author; born in Calais, Me., April 3, 1835; was graduated at the Pinkerton Academy in Derry, N. H., in 1852. In 1859 she published "In a Cellar" in the "Atlantic Monthly." This story made her reputation, and thereafter she became a contributor to the chief periodicals of the country. Her "New England Legends" is popular.

**Spokane**, city and capital of Spokane county, Wash.; on the Spokane river, which here has three deep falls, and on the Great Northern, the Northern Pacific, and other railroads; 544 miles N. E. of Portland, Or.; is the mining and lumber trade center of the Pacific Northwest; has exceptional water-power for manufacturing and other purposes; \$26,125,271 invested in manufacturing plants (1925), with more than \$43,155,747 in value of their output; assessed taxable property valuation (1915) \$87,995,869; seat of Gonzaga College (R. C.) and other institutions, and the military post of Fort Wright. Pop. (1920) 104,437; (1930) 115,514.

## Spontini

**Sponge**, Spongida, a horny substance valued for its ready imbibition of water, and consisting of the keratode skeleton of certain Protozoa or lowest animals. A sponge is thus a colony of living animals. Such a colony communicates with the outer world by means of certain openings (capable of being closed at will), traceable in an ordinary sponge, and of which the larger are named oscula and the smaller pores.

The sponges of commerce come from the Eastern Mediterranean Sea, the West Indies, and the coasts of Florida. In the Archipelago, Crete, Cyprus, on the coasts of Asia Minor, Syria, Barbary, and the Bahama Islands, sponge fisheries constitute a very important industry. The finest sponges are obtained from Turkey.

**Spontini, Gasparo**, an Italian composer; born in Majolatti, near Jesi, in the Roman States, Nov. 14, 1774. He was educated at the Conservatorio de la Pietà of Naples, and began his career when 17 years of age as the composer of an opera, "The Punctilio of Women." This was followed by some 16 operas, produced within six years, for the theaters of Italy and Sicily, but not a note of which has survived. In 1803 Spontini went to Paris; in 1807 he was appointed music director to the Empress Josephine; and in 1808 he produced his most famous work "The Vestal" with brilliant and decisive success. His "Fernando Cortez" appeared in 1809; and the next year witnessed his appointment to the directorship of the Italian Opera in Paris, which he held for 10 years. In 1820 the magnificent appointments offered by the court of Prussia tempted him to leave Paris for Berlin, in which capital his three grand operas, "Nourmahal" (founded on "Lalla Rookh"), "Alcidor," and "Agnes of Hohenstauffen," were produced with great splendor. Spontini continued to reside as first chapel-master in Berlin till the death of the king in 1840. The latter period of his sojourn at Berlin was embittered by professional disputes; and in 1842 he repaired to Paris, where in 1839 he had been elected one of the five members of the Académie des Beaux Arts. He died in Majolatti, Jan. 14, 1851.

**Spontoon**, the half-pike formerly carried by infantry officers, and used for signalling orders to the regiment. Discontinued in British army in 1787.

**Spoonbill**, the popular name of the birds of the genus *Platalea*, belonging to the heron family (*Ardeidae*), order *Grallatores*, from the shape of the bill, which is somewhat like a spoon, being curiously widened out at the tip. Live in society in wooded marshes, and on the sea-shore. Adult male is about 32 inches long; plu-



THE SPOONBILL.

mage white with pale pink tinge; at the junction of the neck with the breast there is a band of buffy yellow; the naked skin on the throat is yellow; legs and feet black; bill about eight inches long, very much flattened and grooved at the base, the expanded portion yellow, the rest black. There is a white occipital crest in both sexes. The spoonbill possesses no power of modulating its voice. The windpipe is bent on itself, like the figure 8, the coils applied to each other and held in place by a thin membrane. This peculiarity does not exist in young birds. The roseate spoonbill, a native of the United States, has rose-colored plumage.

**Sporadic**, a term applied to any disease that is commonly epidemic or contagious, when it attacks only a few persons in a district and does not spread in its ordinary manner. The conditions which determine the occurrence of epidemic or contagious diseases in a sporadic form are unknown. Among the diseases which occur in this form may be especially mentioned cholera, dysentery, measles, scarlatina, and smallpox.

**Spore**, the reproductive body in a cryptogam, which differs from a seed in being composed simply of cells and not containing an embryo. Called also sporules. Applied also to the reproductive bodies produced either singly or at the tips of the fruit-bearing threads in fungi. Plants reproduce themselves in two different ways, "vegetatively" or "truly." The vegetative mode of reproduction is merely a continuous growth of parts already formed. It is quite common in nature. In the true mode of reproduction the growth is not continuous. Certain cells of a plant are set apart for this function. These cells are called spores. In plants higher than the *Thallophytes* such cells do not grow directly into a plant like that from which they have come, but they give rise to a plant which in its turn, when it reaches maturity, produces cells of two sorts, male and female, which unite with one another, and then from the new cell of dual origin there grows a plant like that from which the spore originally came. Thus, on the under surface of the fronds of ferns there may often be seen many small spore cases. The spores fall to the ground, and produce a little green plant called the *prothallium* of the fern. The *prothallium* produces the sex elements. These unite, and from their union grows a new "fern." This indirect mode of reproduction is spoken of as the alternation of generations.

**Sporting Plant**, in botany, the name given by gardeners to plants which have suddenly produced a single bud with a new and sometimes widely different character from that of the other buds. Darwin calls them *bud variations*, and says that they can be propagated by grafts, etc., and sometimes by seed. They rarely occur in plants in a state of nature, but are common under culture.

**Spotted Wild Cat**, an Indian species, about 18 inches long, the tail being about a foot more. It is gray, spotted with black, and the ears are tufted, indicating a relationship with the lynxes.

**Spottsylvania Court-house**, a small village in Virginia, 55 miles N. by W. of Richmond, the scene of one of the most desperate battles of the



American Civil War. On May 10, 1864, during the Wilderness campaign, Grant attacked Lee in his earthworks, and was repulsed with dreadful slaughter; yet on the next day he wrote to the Secretary of War, "I propose to fight it out on this line if it takes all summer," and on the 12th repeated the assault, when Hancock's corps carried and held the "bloody angle." The next morning Lee, unable to bear his share of the heavy losses, withdrew within an inner line of entrenchments, and on the 20th Grant, having failed to dislodge him, moved round his flank toward Richmond.

**Sprague, Austin Velorous Milton**, an American inventor; born in Rochester, N. Y., May 28, 1840. He went to the Pennsylvania oil fields in 1865, and turned his attention to improving methods of oil production. In order to prevent boiler explosions because of the use of brackish water, he conceived and executed a plan for raising the water of the Allegheny river to a reservoir whence it flowed to feed several hundred boilers. He was the inventor of various household articles; improvements in laundry machinery; disinfectors, sterilizers, and thermærotherapeutic apparatus; introduced steam for the sterilization of surgical instruments and dressings, and for the disinfection of textile fabrics, etc.

**Sprague, Charles**, an American poet; born in Boston, Mass., Oct. 26, 1791; was the author of "The Winged Worshippers"; "Curiosity"; and "The Family Meeting." A collection of his works entitled "Poetical and Prose Writings" was published in 1841. Died in Boston, Jan. 22, 1875.

**Sprague, Charles Ezra**, an American author; born in Nassau, N. Y., Oct. 9, 1842. He was an officer through the Civil War, and afterward the secretary and president of a New York bank. He was the editor of "Volaspodel," the organ of the proposed international language called Volapuk.

**Sprague, William**, an American statesman; born in Cranston, R. I., Sept. 12, 1830; was governor of Rhode Island in 1860-1863; raised a battery of light artillery with which he took part in the battle of Bull

Run; served with distinction in the Peninsular campaign; was elected U. S. Senator, while holding the office of Governor, May 28, 1862; re-elected and served from March 4, 1863, to March 3, 1875; retired from public life and engaged in agricultural pursuits at his country seat, near Narragansett Pier, R. I. At one time he was considered a millionaire manufacturer, but ill-fortune overtook him. He died Sept. 11, 1915.

**Sprain**, or **Strain**, a term employed in surgery to designate a violent stretching of tendinous or ligamentous parts with or without rupture of some of their fibers. Sprains are very frequent in all the joints of the upper limbs, especially in the wrist and the articulations of the thumb. In the lower extremity the ankle is the joint by far the most frequently affected; and this is accounted for anatomically by the small size of the articular surfaces, the great weight the astragalus (the bone presenting the lower articular surface) has to support, and the unyielding nature of the lateral ligaments. In slight sprains of this joint the ligaments are only stretched or slightly lacerated, but in more severe cases they may be completely torn through. Sprains of the ankle are sometimes mistaken for fractures, and vice versa; and the two injuries may coexist.

**Sprenger, Jacob**, of the Order of Preachers, and Professor of Theology in Cologne, and Henricus Institor (Latinized form of Kramer), two names of enduring infamy as the authors of the famous "Malleus Maleficarum" or "Hexenhammer" (1489), which first formulated in detail the doctrine of witchcraft, and formed a text-book of procedure for witch trials. They were appointed inquisitors under the bull "Summis desiderantes affectibus" of Innocent VIII. in 1484, and their work is arranged in three parts—"Things that pertain to Witchcraft"; "The Effects of Witchcraft"; and "The Remedies for Witchcraft." It discusses the question of the nature of demons; the causes why they seduce men, and particularly women; transformations into beasts, as wolves and cats; and the various charms and exorcisms to

be employed against witches. The writers detail the extraordinary dangers to which they were exposed in their task, and how all the artillery of hell had been employed against themselves in vain, and they tell with complete composure of mind how in one place 40, in another 50, persons were burned by their means. They admit bodily transmission of sorcerers through the air, and relate numerous cases of the devilish malice of witches on horses and cattle as well as mankind; and in the latter part, consisting of 35 questions, give minute directions for the manner in which prisoners are to be treated, the means to be used to force them to a confession, and the degree of evidence required for a conviction of those who would not confess. The book contains no distinct allusion to the proceedings at the Witches' Sabbath any more than did the "Formicarium" (1440) of John Nider, whose fifth book is devoted to the subject of sorcery.

**Spring**, an elastic substance of any kind, having the power of recovering, by its elasticity, its natural state, after being bent or otherwise forced, interposed between two objects in order to impart or check motion or permit them to yield relatively to each other. Springs are made of various materials, as india-rubber, strips of wire or steel coiled spirally, steel rods or plates, etc., and are used for many purposes; as, for diminishing concussions in carriages, for motive power, acting through the tendency of a metallic coil to unwind itself, as in clocks and watches; to measure weight and other forces as in the spring balance, etc.

In physical geography and geology, an overflow of water or other liquid. When rain falls on a porous soil it is rapidly absorbed, the surface of the soil being soon dry again. Meanwhile the water has percolated downward till it has, at a greater or less depth, been intercepted by an impervious stratum, where it gradually forms a reservoir. It then presses with great force laterally, and a system of subterranean drainage is established. If the impervious stratum be some distance up a hillside, the water finds its way out, not, however, all along the stratum, for the existence of rents,

fissures, and inequalities confines it to a few spots. If the reservoir be on an elevation and a boring be made on a lower level to any of the branches leading from it, the water will rise in the bore to the surface and shoot up into the air to a height proportional to the pressure from the reservoir, as an artesian well, which is akin to a spring.

**Spring, Leverett Wilson**, an American educator; born in Grafton, Vt., Jan. 5, 1840; was graduated at Williams College in 1863, and took a theological course at the Hartford and Andover Theological Seminaries; and Professor of English Language and Literature at Williams College in 1886-1909. He was the author of "Kansas," "Mark Hopkins," etc.

**Springbok**, in zoölogy, an antelope exceedingly common in South Africa. It is about 30 inches high, the horns lyrate, very small in the female; color yellowish dun, white beneath. Two curious folds of skin ascend from the root of the tail, and terminate near the middle of the back; they are usually closed, but open out when the animal is in rapid motion, and disclose a large triangular white space, which is otherwise concealed.

**Springer**, a name given to several varieties of the spaniel. The ears are long and pendulous, and the color usually white with red spots. It is employed to start or spring birds from coverts. The chief breeds are the Clumber, Sussex, and Norfolk.

**Springer, Reuben Runyan**, an American philanthropist; born in Frankfort, Ky., Nov. 16, 1800. After leaving school, he became a clerk on a steamboat plying between Cincinnati and New Orleans, and soon bought an interest in this boat, with which he laid the foundation of his wealth. Subsequently he acquired a large interest in a flourishing grocery business in Cincinnati, where the fine Music Hall and other institutions, are monuments to his munificence. He died in that city, Dec. 10, 1884.

**Springer, William McKendree**, an American jurist; born in Sullivan co., Ind., May 30, 1836; was graduated at the Indiana State University in 1858. He was a member of Con-

gress in 1875-1895. He was the author of the law known as the "Springer Bill," which gave a judicial system to the Indian Territory and established the Territory of Oklahoma. He also introduced the bill creating the States of North and South Dakota, Washington, and Montana. In 1895-1899 he was United States judge for the Northern District of Indian Territory, and chief-justice of the United States Court of Appeals for Indian Territory. He then established himself in law practice in Washington, D. C. Died in 1903.

**Springfield**, city and capital of Sangamon county and of the State of Illinois; on the Chicago & Alton and other railroads; 185 miles S. W. of Chicago; is in one of the richest farming sections of the country, with extensive coal mines nearby; has large rolling mill, a noted watch factory, woolen and flour mills, and elevator, farm implement, and canning plants; contains a \$4,000,000 State Capitol, the Lincoln Nat. Monument, Concordia College (Luth.) Bettie Stuart Inst., St. Agatha's School (P.E.), and State Arsenal. Pop. (1930) 71,864.

**Springfield**, city and capital of Hampden county, Mass.; on the Connecticut river and the Boston & Maine and other railroads; 100 miles S. W. of Boston; has abundant water-power, the largest National Armory and Arsenal in the country, and fire-arm, envelope, railroad car, needle, machinery, and cotton and woolen goods plants; founded in 1636; burned in King Philip's War in 1675; attacked in Shay's Rebellion in 1787. Pop. (1920) 129,614; (1930) 149,900.

**Springfield**, city and capital of Green county, Mo.; on the Kansas City, Clinton & Springfield and other railroads; 238 miles S. W. of St. Louis; is the metropolis of a large farming section; manufactures flour, tobacco, foundry products, railroad cars, and wagons; and contains Drury College (Cong.), Federal Building, Normal School, Zoological Gardens, National and Confederate cemeteries, and, nearby, several natural caves. In the Civil War a number of battles occurred here. Pop. (1930) 57,527.

**Springfield**, city and capital of Clarke county, O.; on the Mad river and several railroads; 84 miles N. E. of Cincinnati; is the center of a large

farming and stock-raising section; is noted for its extensive manufactures of farm implements, besides turbine water-wheels and stationary and portable steam engines; and contains a Federal Building, Wittenberg College (Luth.), Springfield Seminary, and the Warder Lib. Pop. (1930) 68,743.

**Spring-Rice, Sir Cecil Arthur**, a British diplomat; born in London, Eng., Feb. 27, 1859; was graduated at Balliol College, Oxford, in 1882; entered public life as a clerk in the War and Foreign Offices; was secretary at the legations at Brussels, Washington, Tokio, Berlin, and Constantinople; secretary of the embassy at St. Petersburg (now Petrograd) in 1903-6; Minister to Persia in 1906-8, and to Sweden in 1908-13; then became Ambassador to the United States.

**Spurgeon, Charles Haddon**, an English preacher; born in Kelvedon, England, June 19, 1834. In 1854 he entered on the pastorate of the New Park Street Chapel, London, where his preaching proved so attractive that his followers built for him the well-known "Tabernacle" in Newington Butts, opened in 1861. The evangelistic and philanthropic agencies in connection with this immense chapel comprise the Stockwell Orphanage, a pastors' college, where hundreds of young men are trained for the ministry; the Golden Lane Mission, etc. Spurgeon preached in the Tabernacle every Sunday. His sermons were published weekly from 1854, and yearly volumes were issued from 1856. He died Jan. 31, 1892.

**Spy**, a secret emissary sent into the enemy's camp or territory to inspect their works, ascertain their strength and their intentions, to watch their movements, and report thereon to the proper officer. By the laws of war among all civilized nations a spy is subject to capital punishment. To be treated as a spy one must first be caught in the enemy's territory, and in dress other than the adopted military uniform of his country. It must also be clearly shown that the object of the accused person is to gain information for the enemy which it would be to their advantage to know. If, when captured, the prisoner can show that his errand in getting through was of a personal nature, or that he was

## Squadron

trading with the enemy, he can only be held as a prisoner of war. In trying a spy his military rank counts for much. An officer of high rank receives a more thorough trial than a private, though both are tried by court-martial. In the United States the verdict is sent to the President or the Secretary of War or Navy, for approval before execution. When a spy is caught in the act all these formalities are omitted. He is tried by a drum-head court-martial composed of the first five or more officers handy; he is allowed to make an explanation and a verdict is rendered without much deliberation. If he is found guilty the verdict is sent to the highest commanding officer in camp, and on his approval the sentence is carried out, after which a full report is made to the President. The two most famous spies in American history are Nathan Hale and Maj. John Andre, both of whom were captured when about to pass with their information back to their own lines, and the evidence against both was conclusive. Hale received only a trial by drum-head court-martial, while Andre had every opportunity to prove his innocence.

**Squadron**, in military language, a force of cavalry commanded by a captain, and averaging from 120 to 200 men. Each squadron is composed of two troops, each commanded by a captain for purposes of administration, but united under the senior for service in the field. Four squadrons form a regiment. The squadron is frequently considered the tactical unit of cavalry. As a naval term, a division of a fleet; a detachment of ships of war employed on a particular service or station, and under the command of a junior flag officer.

**Squatter**, one who without a title settles on new or uncultivated land. In the early days of the United States its meaning was confined to the foregoing sense. In Australia, one who occupies an unsettled tract of land; as a sheep farm under lease from government at a nominal rent.

**Squaw Berry**, in New England the fruit of the wintergreen is sometimes called squaw berry; but in Utah, Arizona, Southern California, and New Mexico the name is given to the fruit

## Squirrel

of a shrub five to eight feet high, out of the twigs of which the Indians make their baskets. This fruit, which is red and very sour, is gathered in the summer in great quantities by the Indian squaws, and is eaten both fresh and dried. A very pleasant drink also is made by washing the berries in water. The twigs, which are tougher and more durable than willow, have a peculiar scent which never leaves articles made of it. Baskets made of them are very strong, will hold water, and are even used to cook in, hot stones being dropped in from time to time till the food is done.

**Squier, Ephraim George**, an American archaeologist; born in Bethlehem, Pa., June 17, 1821. While a journalist at Chillicothe, O., he prepared an account of discoveries in ancient mounds (he being the principal authority on the subject) for the "Smithsonian Contributions to Knowledge" (1848). He was chargé d'affaires to the Central American States (1849), consul-general to Peru (1863), and to Honduras (1868). He died in Brooklyn, N. Y., April 17, 1888.

**Squier, George Owen**, an American military officer; born in Dryden, Mich., March 21, 1865; was graduated at the U. S. Military Academy in 1887; specialized in the Signal Service; served therein during the Spanish-American War; commanded the U. S. cable ship "Burnside" during the laying of the Philippine cable system; appointed military attaché at London in 1913; and became Major-General and Chief of the Signal Service, in October, 1917.

**Squirrel**, in zoölogy, a popular name for any of the Scuridæ; widely distributed in America, Europe, the Caucasus, Southern Siberia, and probably in Persia. It is a little animal with bright black eyes; from 8 to 10 inches in length, with a bushy tail nearly as long; color gray or reddish-brown, white beneath, but the hue varies with the seasons, in Lapland and Siberia the upper surface becomes gray, and in Central Europe is sprinkled with gray in the winter. Squirrels haunt woods and forests, nesting in trees, and displaying marvelous agility among the branches. They feed on nuts, acorns, beech mast, which

they store up, birds' eggs, and the young bark, shoots, and buds of trees, doing no small amount of damage. They pass the winter in a state of partial hibernation, waking up in fine, warm weather, when the provision laid up in the summer is made use of for food. They are monogamous, and the female produces three or four young, usually in June. In Lapland and Siberia they are killed in great numbers for the sake of their winter coat. This, though valuable, is inferior to the fur of the North American gray squirrel.

**Squirrel Monkey**, from South America. It is about 10 inches long, with a tail half as much again; fur olive-gray on the body, limbs red, muzzle dark. They are affectionate and playful in disposition.

**Staal, Marguerite Jeanne, Baroness de**, a French author; born in Paris, May 30, 1684. She had a sound education at the convent of Saint Louis at Rouen, and at 27 was attached to the person of the imperious and intriguing Duchesse de Maine at the little court of Sceaux. Here she saw before her eyes all that comedy of life which she was later to describe with such penetrating insight. In 1735 she married Baron de Staal, an officer of the Guard. Her "Memoires" (4 vols. 1755), show intellect and observation, as well as remarkable mastery of subtle irony, and are written in a style clear, firm, and individual. Her "Complete Works" appeared at Paris in two volumes in 1821. She died in Paris, June 16, 1750.

**Stabat Mater**, in music, a well-known Latin hymn on the Crucifixion, sung during Passion week in the Roman Church.

**Staff**, a kind of artificial stone used for covering and ornamenting buildings. It is made chiefly of powdered gypsum or plaster of Paris, with a little cement, glycerin, and dextrine, mixed with water until it is about as thick as molasses, when it may be cast in molds into any shape. To strengthen it coarse cloth or bagging, or fibers of hemp or jute, are put into the moulds before casting. It becomes hard enough in about a half hour to be removed and fastened on the building in construction. Staff may easily

be bent, sawed, bored, or nailed. Its natural color is murky white, but it may be made of any tint to resemble any kind of stone, and may be painted and gilded. It is fire-proof and water-proof and if cared for will last a long time, as it may be easily repaired with a trowel and a pailful of the mixture.

**Staffa**, a celebrated island on the W. of Scotland. It forms an oval uneven table-land, rising at its highest to 144 feet above the water,  $1\frac{1}{2}$  miles in circumference, and 71 acres in area. The most remarkable feature of the island is Fingal's or the Great Cave, the entrance to which is formed by columnar ranges on each side, supporting a lofty arch. The entrance is 42 feet wide, and 66 feet high, and the length of the cave is 227 feet. The floor of this marvelous chamber is the sea, which throws up flashing and many-colored lights against the pendant columns, whitened with calcareous stalagmite, that form the roof.

**Stafford**, a parliamentary and municipal borough of England, capital of Staffordshire, on the Sow, 25 miles N. W. of Birmingham; contains St. Mary's Church, a cruciform building restored by Sir Gilbert Scott, and the Church of St. Chad in Norman style; and is principally engaged in the manufacture of boots and shoes. Pop. (1921) 26,410.

**Stafford, Wendell Phillips**, an American jurist; born in Barre, Vt., May 1, 1861; received an academic education and was graduated at the Law Department of Boston University in 1883. He served in the Vermont House of Representatives in 1892; was reporter of decisions of the Supreme Court of Vermont in 1896-1900; judge of that Court in 1900-4; Associate Justice, Supreme Court of the District of Columbia, from 1904; and Professor of Equity Jurisprudence at George Washington University from 1908. He was President of the Vermont Bar Association in 1898-9; edited the 69th, 70th, and 71st volumes of Vermont Reports; and also engaged in literature and lecturing. His literary publications include "Euryloides Transformed," "North Flowers" (poems), "Voices, a Dramatic Ode," and "Dorian Days."

**Stag, or Red Deer**, a typical species of deer, occurring in the N. of



## Stag

Europe and Asia. It was once found throughout the whole of Great Britain, but is now confined to the Scotch Highlands. The horns or antlers are round and have a basal snag in front. The females are hornless and are named hinds. The horns of the first year are mere bony projections; they advance in development during the second year, when the stag is named a brocket. In each succeeding year the horns grow more and more branched, the stag being named a hart



STAGS.

in its sixth year, when the horns may be said to reach their maximum size. As in all deer, the horns are shed annually. The average height of a full-grown stag is about four feet at the shoulders; the winter coat is greyish-brown; in summer, brown is the prevailing tint. The food of the stag consists of grasses and the young shoots of trees, lichens forming the greater part of its food in winter. The stag is a powerful runner and swimmer. Driven to bay, it becomes a formidable adversary to the largest and most powerful staghound, or even to man himself. The pairing season occurs in August, and the males then

engage in combats for the females and become peculiarly fierce. The flesh is somewhat coarse.

**Stag Beetle**, in entomology, one of the larger insects, the male being about two inches long. Their projecting mandibles are denticulated, and somewhat resemble stag's horns; with these they can inflict a pretty severe wound. The stag beetle is common in forests, and flies about in the evening in summer. Some of the tropical stag beetles are very brilliantly colored.

**Stage**, in theaters and some other places of amusement, a platform elevated above the ground, and specifically applied to the raised floor on which performances are exhibited.

**Stage-Coach**, a vehicle for carrying passengers on regular routes, the journey being accomplished by stages. Such vehicles were formerly universal in the United States and Great Britain, but the railway system has led to their almost entire discontinuance, except in localities to which the railway has not reached.

**Staggers**, a popular term applied to several diseases of horses. Mad or sleepy staggers is inflammation of the brain, a rare but fatal complaint, marked by high fever, a staggering gait, violent convulsive struggling, usually terminating in stupor. Grass or stomach staggers is acute indigestion, usually occasioned by overloading the stomach and bowels with tough hard grass, vetches, or clover, a full meal of wheat, or other indigestible food.



STAGHOUND.

**Staghound**, the Scotch deerhound, called also the wolf dog, a breed that

is rapidly dying out. These dogs hunt chiefly by sight and are used for stalking deer, for which purpose a cross between the rough Scotch greyhound and colley or the foxhound is also often employed. True staghounds are wiry-coated, shaggy, generally yellowish-gray, but the most valuable are dark iron-gray, with white breast.

**Stainer, Sir John**, an English organist and composer; born in 1840; died, 1901. He was a chorister at St. Paul's from his seventh to his sixteenth year; appointed organist first, at St. Michael's College, Tenbury, then in 1859 to Magdalen College, Oxford, and ultimately in 1872 to St. Paul's. The oratorio "Gideon" (1875), is one of his compositions.

**Stalactite and Stalagmite**, formations of carbonate of lime. Stalactitic formations occur chiefly in long and more or less fantastic-shaped masses suspended from the roofs of caverns in limestone rocks. The flatter deposits, called stalagmites, are formed on the floor of the cavern by the water there depositing that portion of its carbonate of lime which is not separated during the formation of the stalactite. The most remarkable instances of their occurrence are Luray (Virginia) and Mammoth (Kentucky) Caves in the United States.

**Stall, Sylvanus**, an American clergyman; born in Elizaville, N. Y., Oct. 18, 1847; was graduated at Pennsylvania College, Gettysburg, Pa., in 1872; studied theology there in Union Theological Seminary; was ordained in the Lutheran Church; and held various pastorates. His publications include "How to Pay Church Debts." He died Nov. 6, 1915.

**Stamford**, a city in Fairfield co., Conn.; on Long Island Sound and the New York, New Haven & Hartford railroad; 35 miles E. of New York city; manufactures woolen goods, lumber, typewriters, pianos, tiling, paint, stoves, dye stuffs, patent medicines, hardware and pottery; has handsome villas and parks on neighboring hills; is residential place of many New York business men. Pop. (1930) 46,346.

**Stamen**, in botany, the male organ of a flower, called by the old botanists an apex and a chive.

**Stammering, or Stuttering**, an infirmity of speech, the result of failure in coördinate action of certain muscles and their appropriate nerves. It is analogous to some kinds of lameness; to cramp or spasm, or partial paralysis of the arms, wrists, hands, and fingers, occasionally suffered by violinists, pianists, and swordsmen; to the scrivener's palsy, or writer's cramp, of men who write much. For speech—like writing, fencing, fingerling a musical instrument, and walking—is a muscular act involving the coördinate action of many nerves and muscles.

**Stamp Act**, an act for regulating the stamp duties to be imposed on various documents, specifically an act passed by the British Parliament in 1765, imposing a stamp duty on all paper, parchment, and vellum used in the American colonies, and declaring all writings on unstamped paper, etc., to be null and void. The indignation roused by this act was one of the causes of the Revolutionary War.

**Stamp Duty**, a tax or duty imposed on pieces of parchment or paper, on which many species of legal instruments are written. The internal revenue acts of the United States of 1862, and subsequent years, required stamps for a great variety of subjects, under severe penalties in the way of fines and invalidating of written instruments; stamps for liquors and tobacco are still in use.

**Stamp Mill**, a contrivance of great utility in reducing hard mineral ores to a pulverized condition. It consists of an engine containing a series of heavy iron shod pestles moved by water or steam power.

**Standard**, a flag or ensign round which men rally, or under which they unite for a common purpose; a flag or carved symbolical figure, etc., erected on a long pole or staff, serving as a rallying point or the like. The ancient military standard consisted of a symbol carried on a pole like the Roman eagle, which may be considered as their national standard. Each cohort had its own standard by which it was known, and which was surmounted with a figure of Victory, an open hand, etc., the pole being decorated with circular medallions, etc.

**Standard, Battle of the**, a battle in which David I. of Scotland, who had espoused the cause of Maud against Stephen, was signally defeated by the English under the Bishop of Durham. It was fought in the neighborhood of Northallerton, in Yorkshire, on Aug. 22, 1138, and it received its name from the fact that the English forces were gathered round a tall cross mounted on a car, and surrounded by the banners of St. Cuthbert, St. Wilfred, and St. John of Beverley.

**Standard Time**, a system of time-reckoning, chiefly for the convenience of railroads in the United States. The United States, beginning at its extreme E. limit and extending to the Pacific coast, is divided into four time-sections: E., central, mountain, and Pacific. The E. section, the time of which is that of the 75th meridian, lies between the Atlantic Ocean and an irregular line drawn from Detroit, Mich., to Charleston, S. C. The central, the time of which is that of the 90th meridian, includes all between the last-named line and an irregular line from Bismarck, N. D., to the mouth of the Rio Grande. The mountain, the time of which is that of the 105th meridian, includes all between the last-named line and the W. boundary of Montana, Idaho, Utah, and Arizona. The Pacific, the time of which is that of the 120th meridian, includes all between the last-named line and the Pacific coast. The difference in time between adjoining sections is one hour.

**Standing Stones**, rude unhewn blocks of stone in an upright position in almost every part of the world, in Europe, India, Persia, and even in Mexico. Whatever may have been the period of their erection, their great size would necessitate the knowledge of the use of mechanical power. They are found more frequently in Great Britain, and were supposed to belong to the time of the Druids; but modern investigations have deprived this theory of its certainty.

**Standish, Myles**, an American soldier; born in Duxbury, Lancashire, about 1584; served in the Netherlands; and, though not a member of the Leyden congregation, sailed with

the "Mayflower" colony to Massachusetts in 1620, and became the champion of the Pilgrims against the Indians. During the first winter his wife died, and the traditional account of his first effort to secure another partner has been made familiar by Longfellow. In 1622, warned of a plot to exterminate the English, he enticed three of the Indian leaders into a room at Weymouth, where his party, after a desperate fight, killed them, and a battle that followed ended in the flight of the natives. Standish was the military head of the colony, and long its treasurer. A monument, 100 feet high and surmounted by a statue, has been erected to him on Captain's Hill at Duxbury. In 1632 he settled at Duxbury, Mass., where he died, Oct. 3, 1656.

**Stand-Pipe**, a boiler supply pipe of sufficient elevation to enable the water to flow into the boiler notwithstanding the pressure of the steam. In hydraulic engineering, a stand-pipe is a vertical pipe, arranged as a part of the main in waterworks to give the necessary head to supply elevated points in the district, or to equalize the force against which the engine has to act.

**Stanford, Jane Lathrop**, an American philanthropist; born in Albany, N. Y., Aug. 25, 1825; was the wife of Leland Stanford, the founder of the Leland Stanford Jr. University. She built and endowed the Children's Hospital in Albany, N. Y., at a cost of \$200,000; gave \$160,000 to the kindergartens in San Francisco, Cal., and after the death of her husband in 1893 devoted herself to the development and support of the Leland Stanford University. In 1901 she supplemented her gifts to the university by turning over to its trustees stocks valued at \$18,000,000; her residence in San Francisco, valued at \$400,000, for a museum and art gallery; and 1,000,000 acres of land worth \$12,000,000. These gifts swelled the endowment of the university to more than \$45,000,000. She died under suspicious circumstances from poison at Honolulu, Feb. 28, 1905.

**Stanford, Leland**, an American philanthropist; born in Watervliet, Albany co., N. Y., March 9, 1824. In

1852 he went to California, where he engaged in mining, but in 1856 removed to San Francisco and there engaged in business, laying the foundation of a fortune estimated at more than \$50,000,000. He was elected president of the Central Pacific railroad in 1861; was governor of California in 1861-1863; and in 1885 was elected to the United States Senate. In memory of a deceased son, Leland Stanford, Jr., he gave \$20,000,000 for the founding of Leland Stanford University at Palo Alto, Cal. He died in Palo Alto, June 21, 1893.

**Stanhope**, the name of a noble English family. James, 1st Earl of Stanhope; born in Paris, France, in 1673. He entered the army, served as Brigadier-General under the Earl of Peterborough at the capture of Barcelona in 1705, was appointed Commander-in-Chief of the British forces in Spain, and in 1708 took Port Mahon. He died in London, Feb. 5, 1721. Charles, the 3d earl; grandson of the preceding; born in London, England, Aug. 3, 1753; was celebrated chiefly as an inventor. His chief inventions were an arithmetical machine and a printing press, which bears his name. He died in London, Dec. 15, 1816. Philip Henry, 5th earl, grandson of the preceding; born in Walmer, Kent, Jan. 31, 1805. He filled various official positions in the ministry of Sir Robert Peel, but he was best known under his title of Lord Mahon, as the author of a "History of the Succession War in Spain," etc. He died in Bournemouth, Hampshire, Dec. 24, 1875.

**Stanislan**, a city of Galicia, Poland, 70 miles S. E. of Lemberg; is an important railroad station, and is engaged in tanning, dyeing, milling, and the manufacture of tiles and railroad appliances. It was nearly destroyed by fire in 1868. Pop. (Est.) 36,000.

**Stanislaus Augustus**, Stanislaus II., the last King of Poland, son of Count Stanislaus Poniatowski; born in Wolczyn, Lithuania, Jan. 17, 1732. Sent by Augustus III., of Poland, on a mission to St. Petersburg, he became a favorite with the grand-princess (afterward the Empress Catherine), by whose influence he was

crowned King of Poland at Warsaw in 1764. The nobility forcibly compelled the king to abdicate (1771). He died in St. Petersburg, Feb. 12, 1798, as a pensioner of the Emperor Paul I.

**Stanislaus Leszczynski**, Stanislaus I., King of Poland; born in Lemberg, Galicia, Oct. 20, 1677. He was elected and crowned (1705), but after the disastrous battle of Poltava (1709), he had to flee from Poland. He found refuge in France ultimately, where his daughter Maria became wife to Louis XV. His writings were published under the title of "Works of the Beneficent Philosopher" (1765). He died Feb. 23, 1766.

**Stanley, Henry Morton**, an American explorer; born near Denbigh, Wales, in 1840; name originally John Rowlands. When three years old he became an inmate of the poorhouse at St. Asaph, where he made such progress in the school that he was employed as a teacher of other children at Mold, Flintshire, when he went away at the age of 13. Two years later he sailed as cabin boy on board a vessel bound for New Orleans, and in that city he found a friend in a merchant, who adopted him and gave him his own name, but died leaving no will. Young Stanley, left to his own resources, went to California, where he sought his fortune in the gold mines. When the Civil War broke out he became a soldier in the Confederate army. He was made prisoner, and subsequently took service in the United States navy, becoming acting ensign on the iron clad "Ticonderoga." After the close of the war he became a newspaper correspondent, writing a series of letters from Crete and Asia Minor. When the English expedition was sent against King Theodore of Abyssinia in 1867 he accompanied it as commissioner of the New York "Herald." In 1868 he went to Spain to report the Carlist War for the same paper. He was called away from there in October, 1869, to go in search of Dr. David Livingstone in Africa, from whom no news had been received for more than two years. He reached Zanzibar early in January, 1871. There he organized a large expedition of 192 men, which

he sent off in five parties. His objective point was Ujiji, which he reached, and found Livingstone, Nov. 10, 1871. After remaining with the veteran explorer four months he returned, Livingstone refusing to give up his enterprise till he had completed his work. Stanley arrived at Zanzibar in May, 1872. In 1874 he set out on a second African expedition for the "Herald" and London "Daily Telegraph." At Zanzibar he learned that Livingstone had died in the autumn on the shore of Lake Bangweolo. He reached Victoria Nyanza in February, 1875. He was the first to circumnavigate Victoria Lake, and discovered the Shimeeyu river. He reached England again in February, 1878. Then came the Belgian enterprise, out of which was developed the Free State of Kongo, with Stanley as its conductor, with large means at his disposal. Near the close of 1886 Stanley, under the auspices of the Egyptian government and of English societies and individuals, undertook an expedition for the relief of Emin Pasha. For this purpose he left England in January, 1887, and returned in 1890, after escorting Emin Bey and a large troop of followers from the interior to the coast. Stanley's last journey in Africa lasted 1,012 days, of which hardly 20 were devoid of perils and tragic incidents. The cost of the expedition was \$150,000. He wrote: "How I Found Livingstone," "Through the Dark Continent," "Congo and the Founding of its Free State," "Slavery and the Slave Trade," "In Darkest Africa," etc. Was made a D. C. L. of Oxford University in 1890, and the same year was married to Miss Dorothy Tennent in Westminster Abbey. In 1890-1891 he made a lecturing tour of the United States, and in 1895 was elected a member of the English House of Commons. He died May 10, 1904.

**Stannaries**, the mines from which tin is dug. The term is most generally used with reference to the peculiar laws and usages of the tin mines in the counties of Cornwall and Devon, England.

**Stanton, Edwin McMasters**, an American statesman; born in Steubenville, O., Dec. 19, 1814. In 1860 he

was appointed Attorney-General of the United States. In 1862 he succeeded Simon Cameron as Secretary of War and held that office for six years. His opposition to President Johnson's plan of reconstruction led the latter to request his resignation in 1867. He refused to resign, but on Aug. 12 surrendered his office under protest to General Grant as secretary ad interim. On Jan. 13, 1868, the United States Senate reinstated him, but the President appointed Adj.-Gen. Lorenzo Thomas to fill his place. Stanton refused to vacate the office, however, and the impeachment of the President followed. On the President's acquittal, Stanton resigned and resumed law practice. On Dec. 20, 1869, he was nominated by President Grant as an associate justice of the Supreme Court of the United States, but died before taking his seat, in Washington, Dec. 24.

**Stanton, Elizabeth Cady**, an American reformer; born in Johnstown, N. Y., Nov. 12, 1815; called the first Woman's Rights Convention in Seneca Falls, N. Y., in 1848; addressed the New York Legislature on the rights of married women in 1854, and in advocacy of divorce for drunkenness in 1860; and was an unsuccessful candidate for Congress in 1868. She was the author of "The History of Woman Suffrage," and other works. She died Oct. 26, 1902.

**Stanton, Henry Brewster**, an American abolitionist; born in Griswold, Conn., June 29, 1805. He was husband of Elizabeth Cady Stanton. He assisted in organizing the Republican party (1858-1860), and from 1868 was an editor of the New York "Sun." He published "Sketches of Reform and Reformers in Great Britain and Ireland"; and "Random Recollections." He died Jan. 14, 1887.

**Stanton, Henry Thompson**, an American poet; born in Alexandria, Va., June 30, 1834; studied at the United States Military Academy; served in the Confederate army throughout the Civil War, first as captain and later as major. He designed an iron tie for binding cotton bales, and was the author of "The Moneyless Man and Other Poems." He died in 1898.



**Stanton, Richard Henry**, an American jurist; born in Alexandria, Va., Sept. 9, 1812; was a Democratic member of Congress from Kentucky in 1849-1855, and district judge in 1868-1874. Publications: "Code of Practice in Civil and Criminal Cases in Kentucky;" "Practical Treatises for Justices of Peace;" etc. Died 1891.

**Stanton, Theodore**, an American journalist, son of Henry B. and Elizabeth Cady; born in Seneca Falls, N. Y., Feb. 10, 1851. He was a correspondent for the New York "Tribune" at Berlin; held other important positions abroad, and has for some time past been literary representative of Harper & Brothers in Paris.

**Staple**, the modern form of the Anglo-Saxon word stapel, meaning a heap, or regularly piled up accumulation, of goods; hence a place where goods are stored up for sale. In the Middle Ages, when the term was in common use, a staple meant both the trading town for particular commodities and the commodities that were wont to be exposed for sale there.

**Star**, one of the self-luminous bodies which surround our solar system on all sides. They are distinguished from the planets by their flickering light, by the comparative constancy of their relative positions in space, and by their inappreciable diameter even when viewed by the most powerful optical instruments. The number of stars visible to the naked eye is estimated at about 5,000; and these have from an early age been grouped in constellations and classified according to their brightness or magnitude. Those belonging to the first six magnitudes are visible to the naked eye; but the telescope reveals myriads which are distinguished down to the 16th magnitude. Of modern catalogues, Argelander's "Sternverzeichniss" is the largest, enumerating more than 300,000 down to the ninth magnitude, all situated between the pole and 2° S. of the equator.

**Starch**, a proximate principle of plants, universally diffused in the vegetable kingdom, and of great importance. It occurs in seeds, as in those of wheat and other cereal grains, and also in leguminous plants; in roots, as in the tubers of the potato; in the stem

and pith of many plants, as in the sage plant; in some barks, as in that of cinnamon; and in pulpy fruits, such as the apple. Finally, it is obtained in the expressed juice of most vegetables, such as the carrot, in a state of suspension, being deposited on standing. The starch of commerce is chiefly extracted from wheat and potatoes. It is composed of transparent rounded grains, the size of which varies in different plants, those of the potato being among the largest, and those of wheat and rice the smallest. It is insoluble in cold water, alcohol, and ether; but when heated with water it is converted into a kind of solution, which, on cooling, forms a stiff semi-opaque jelly. If dried up this yields a translucent mass, which softens and swells into a jelly with water. It is employed for stiffening linen and other cloth. When roasted at a moderate heat in an oven it is converted into a species of gum employed by calico-printers; potato starch answers best for this purpose. Starch is also the chief ingredient of bread.

**Star Chamber**, a British tribunal which met in the old council chamber of the palace of Westminster, and is said to have received its name from the roof of that apartment being decorated with gilt stars, or because in it "starres" or Jewish bonds had been kept. It is supposed to have originated in early times out of the exercise of jurisdiction by the king's council, whose powers in this respect had greatly declined when in 1487 Henry VIII., anxious to repress the insolence and illegal exactions of powerful landowners, revived and remodelled them, or, according to some investigators, instituted what was practically an entirely new tribunal. The statute conferred on the Chancellor, the Treasurer, and the Keeper of the Privy Seal, with the assistance of a bishop and a temporal Lord of the Council, and Chief-justices, or two other justices in their absence, a jurisdiction to punish, without a jury, the misdoings of sheriffs and juries, as well as riots and unlawful assemblies. Henry VIII. added to the other members of the court the president of the Council, and ultimately all the privy-councillors were members of it. The

resulting tribunal was, during the Tudor age, of undoubted utility as a means of bringing to justice great and powerful offenders who would otherwise have had it in their power to set the law at defiance. It was independent of a jury, and at that time juries were too easily terrorized by the nobles. The proceedings of the Star Chamber were viewed with distrust by the commons; but during the reign of Charles I. its excesses reached a pitch that made it absolutely odious to the country at large, and in 1641 a bill was carried in both Houses which decreed the abolition of the Star Chamber and the equally unpopular High Commission Court.

**Starfish**, in zoölogy, a popular name for any individual of the family Asteridæ, a familiar object on the



STARFISHES AND BRITTLE STARS.

- (1) Common Starfish (*Asterias rubens*);
- (2) Gibbous Starlet (*Asterina gibbosa*);
- (3) Common Starfish, reproducing rays;
- (4) Eyed Cribella (*Cribella oculata*);
- (5) Lesser Sand-star (*Ophiura albida*).

Atlantic coasts. The body is more or less star shaped, and consists of a central portion, or disk, surrounded by five or more lobes, or arms, radiating from the body and containing prolongations of the viscera. The mouth is situated in the center of the lower surface of the body, and the anus is either absent or on the upper surface. Locomotion is effected by means of peculiar tube-like processes, which are protruded from the under surface of

the arms. They possess in a high degree the power of reproducing lost members and abound in all seas.

**Star Gazer**, a species of acanthopterygious fishes of the perch family, inhabiting the Mediterranean, and so called because the eyes are situated on the top of the head and directed toward the heavens. It is found in the rivers of Guiana, and acquires its name of "four eyes" from its prominent and apparently divided eyes.

**Stark, John**, an American military officer; born in Londonderry, N. H., Aug. 28, 1728; joined the troops under Major Rogers in the war against the French and Indians in 1754; rendered efficient service at Ticonderoga in 1758, and was actively employed in the subsequent campaign. In 1775, after the battle of Lexington he received a colonel's commission, and recruited a regiment which formed the left of the American line at Bunker Hill. In 1777 he resigned his commission, feeling slighted by Congress in its list of promotions. When, however, information was received that Ticonderoga had been taken, he set out at the head of a small force, met and defeated Baum's forces at Bennington, and likewise defeated the British reinforcements of 500 men which Burgoyne had sent to Baum's aid. For this victory he was promoted Brigadier-General. He died in Manchester, N. H., May 8, 1822.



STARLING.

**Starling**, in ornithology, a popular name for any individual of the genus

**Sturnus**, abundant in most parts of the continent of Europe, frequently visiting Northern Africa in its winter migrations. The male is about eight inches long, general color of the plumage, black, glossed with blue and purple, the feathers, except those of the head and fore neck, having a triangular white spot on the tip. They become exceedingly familiar in confinement, and display great imitative powers, learning to whistle tunes and to articulate words and phrases with great distinctness.

**Starnosed Mole**, a North American genus of moles, distinguished by bearing at the extremity of their muzzle a remarkable structure of fleshy and somewhat cartilaginous rays disposed in the form of a star.

**Star of Bethlehem**, the celestial phenomenon described in the New Testament as accompanying the birth of Christ. Some astronomers have attempted to account for this on the hypothesis of the conjunction of two or more bright planets in about the same part of the sky at that time, but with little success. At various times since the appearance of Tycho Brahe's star in the constellation Cassiopeia in 1572, the celebrated Nova of that year, it has been suggested that this might be a variable star of long period, though there is nothing now in the vicinity of the place of this star brighter than the 12th or 13th magnitude. Nevertheless, a reported appearance of a bright star in somewhere near that part of the heavens about the middle of the 13th century combined with a still more vague account of some similar appearance a little more than 300 years earlier, furnished plenty of material for conjecture that these might possibly be former appearances of the star of 1572, giving a period of about 310 or 315 years, and a further use of the imagination would carry it back three periods more to about the time of the birth of Christ. This is all the ground there is for supposing any connection between Tycho's star of 1572 and the Star of Bethlehem. Astronomers, since the invention of the telescope, have kept a pretty close watch of the few faint stars in the immediate vicinity of the place indicated by Tycho

Brahe's measures to see if any of them changed in brightness, but without any evidence of such change. Nevertheless, some years ago, as it was getting to be about time for another appearance of the star on the 310 or 315 years hypothesis, the story was revived again, and the newspapers predicted a reappearance of the "Star of Bethlehem," but no such appearance came.

**Star of Bethlehem**, in botany, a bulbous-rooted plant with white star-like flowers. It is naturalized in the United States.

**Starr, Ella**, an American journalist; born in New York city. A book of Shakespearean tales arranged for children and one on "Mythology" were left unfinished at her death in Fishkill, N. Y., Feb. 14, 1902.

**Starr, Eliza Allen**, an American author; born in Deerfield, Mass., Aug. 29, 1824. In 1856 she settled in Chicago, Ill., and devoted her time to teaching and to literary work. Her publications include "Poems"; "Patron Saints"; "Pilgrims and Shrines"; etc. In 1900 she received a cameo medallion from Pope Leo XIII. in recognition of her literary work. She died in Durand, Ill., Sept. 9, 1901.

**Starr, Frederick**, an American educator; born in Auburn, N. Y., Sept. 2, 1858; was Professor of Sciences at the State Normal School, Lock Haven, Pa., in 1883-1884; had charge of the Department of Anthropology at the American Museum of Natural History in 1889-1891. He was called to the chair of anthropology at the University of Chicago in 1893. His publications include: "On the Hills"; "Some First Steps in Human Progress"; "Indians of Southern Mexico"; "Strange People"; "Filipino Riddles," etc.

**Starr, Louis**, an American physician; born in Philadelphia; became prominent by his treatment of children's diseases; was Clinical Professor of the Diseases of Children at the University of Pennsylvania in 1884-1890. His publications include "Diseases of Digestive Organs in Infancy and Childhood"; "Hygiene of the Nursery"; "Diets for Infants and Children in Health and Disease"; etc.

**Star Routes**, a term used in connection with the United States postal service. Prior to 1845 it was the custom in letting the contracts for the transportation of inland mails, other than by railroad or steamboat routes, to give the preference to bidders who offered stage or coach service. This was abolished by act of Congress March 3, 1845, which provided that the postmaster general should let all such contracts to the lowest bidder tendering sufficient guarantee for faithful performance, without any condition except to provide for due celerity, certainty and security of transportation. These bids for such service became classified as "celerity, certainty and security bids," and for brevity were designated on the route registers by three stars (\*\*\*) and known as star routes. These routes vary in length from a fraction of a mile up to several hundred miles, the longest one in operation in 1899 being that from Juneau, Alaska, via Circle in the same territory, along the Yukon river to Tanana, a distance of 1,618 miles, connecting at the last named point with the next longest route which runs from Tanana to St. Michaels, a distance of 900 miles.

Early in 1881 rumors were in circulation of extensive frauds in this branch of the mail service. Proceedings were begun, but no conviction was secured either on these charges or on others which were made in 1883.

**Stars and Bars**, the flag of the Confederate States of America. It was merely an adaptation of the stars and stripes, having three "alternate stripes red and white," instead of 13 such stripes, and a circle of white stars on a blue field, corresponding to the number of States of the confederacy.

**Stars and Stripes**, the national banner of the United States.

**Star Spangled Banner**, the national banner of the United States. First applied to the American flag by Francis S. Key on the morning after the British attack on Fort McHenry, at Baltimore, in 1814.

**Star Thistle**, a British plant which grows in gravelly, sandy, and waste places in the middle and S. of England, especially near the sea, and

is remarkable for its long spreading spiny bracts. The star thistle, native in Arkansas and Louisiana, has very showy, pale-purple heads.

**State**, one of the members of the North American federation or union. The erection of the constituent members of the Union into their present status and reciprocal relations may be said properly to have begun with the formal ratification of the first Constitution of the United States, the order of which, by States, is given below. Prior to this action on their part, the colonies had occupied simply the position of congeries of provinces banded together for mutual defense, and having no other organic union than a common legislative body composed of delegates sent from each colony, which delegates might be withheld and all connection with the general body dissolved by the independent action of any one of the commonwealths composing it. The first to enter the sisterhood of States by ratifying the Constitution was Delaware, which, on Dec. 7, 1787, unanimously voted its adoption; then followed Pennsylvania, Dec. 12, 1787, vote 46 to 23; New Jersey, Dec. 18, 1787, unanimously; Georgia, Jan. 2, 1788, unanimously; Connecticut, Jan. 9, 1788, vote 128 to 40; Massachusetts, Feb. 6, 1788, vote 187 to 168; Maryland, April 28, 1788, vote 63 to 12; South Carolina, May 23, 1788, vote 149 to 73; New Hampshire, June 21, 1788, vote 57 to 46; Virginia, June, 1788, vote 89 to 79; New York, July 26, 1788, vote 30 to 28; North Carolina, Nov. 21, 1789, vote 193 to 75; Rhode Island, May 29, 1790, vote 34 to 32. It will thus be seen that Delaware is really the oldest State in the Union, while Rhode Island is the youngest. After the ratification of the Constitution and the entrance into statehood by the 13 original parties to the contract, the other members of the Union were admitted by act of Congress, upon their own petition on the following dates:

Alabama	Dec. 14, 1819
Arizona	Feb. 14, 1912
Arkansas	June 15, 1836
California	Sept. 9, 1850
Colorado	Aug. 1, 1876
Florida	March 3, 1845
Idaho	July 3, 1890

# State

# State

Illinois	Dec. 3, 1818
Indiana	Dec. 11, 1816
Iowa	Dec. 28, 1846
Kansas	Jan. 29, 1861
Kentucky	June 1, 1792
Louisiana	April 30, 1812
Maine	March 15, 1820
Michigan	Jan. 26, 1837
Minnesota	May 11, 1858
Mississippi	Dec. 10, 1817
Missouri	Aug. 10, 1820
Montana	Nov. 8, 1889
Nebraska	March 1, 1867
Nevada	Oct. 31, 1864
New Mexico	Jan. 6, 1912
North Dakota	Nov. 2, 1889
Ohio	Jan. 19, 1803
Oklahoma	March 4, 1906
Oregon	Feb. 14, 1859
South Dakota	Nov. 2, 1889
Tennessee	June 1, 1796
Texas	Dec. 29, 1845
Utah	Jan. 14, 1896
Vermont	March 4, 1791
Washington	Nov. 11, 1889
West Virginia	June 19, 1863
Wisconsin	May 29, 1848
Wyoming	July 10, 1889
Alaska, Hawaii, Porto Rico, and the Philip- pines have restricted Delegates.	

	Electoral vote	Repre- sentatives
Alabama	12	10
Arizona	3	1
Arkansas	9	7
California	13	11
Colorado	6	4
Connecticut	7	5
Delaware	3	4
Florida	6	4
Georgia	14	12
Idaho	4	2
Illinois	29	27
Indiana	15	13
Iowa	13	11
Kansas	10	8
Kentucky	13	11
Louisiana	10	8
Maine	6	4
Maryland	8	6
Massachusetts	18	16
Michigan	15	13
Minnesota	12	10
Mississippi	10	8
Missouri	18	16
Montana	4	2
Nebraska	8	6
Nevada	3	1
New Hampshire	4	2
New Jersey	14	12
New Mexico	3	1
New York	45	43
North Carolina	12	10
North Dakota	5	3
Ohio	24	22
Oklahoma	10	8
Oregon	5	3
Pennsylvania	33	36
Rhode Island	5	3
South Carolina	9	7
South Dakota	5	3
Tennessee	12	10
Texas	20	18
Utah	4	2
Vermont	4	2
Virginia	12	10
Washington	7	5
West Virginia	8	6
Wisconsin	13	11
Wyoming	3	1
	531	435

After the Civil War, the seceding States were deprived of statehood. Gradually, however, a reconstruction of the States was accomplished, and they were readmitted into full fellowship in the galaxy of States. The government of each State is an autonomy, and each is the supreme judge of its own laws, except so far as affected by the laws or the Constitution of the United States, the superior power of which is granted expressly in the compact of the union. The chief executive is a governor elected by the people for terms of varying length. The legislative body is composed of two houses, an upper and lower, also elected by the people; while the judiciary is selected by varying methods, in some States being elected directly by the people, in others by the Legislature, and in still others appointed (in some instances) by the governor. Each State has in the National Congress two senators and a number of representatives in the lower house based on the population of the State. From 1913 to 1923, based on the United States census of 1910, the ratio is one representative to 211,877 of population. The following table shows the number of electoral votes and Congressional representatives by States:

**State, Department of**, an executive department of U. S. government, established by Act of Congress, 1789. At its head is the Secretary of State, who is appointed by President and confirmed by Senate. Through him communication is made between the United States government and any of the States or any foreign country. He has charge of the great seal of the United States; of all ambassadors and consuls, and in his custody are all engrossed copies of the laws of the United States and all treaties.



## Staten Island

## Stay

**Staten Island**, an island comprising Richmond co., N. Y., and Richmond borough, New York city; bounded N. by the Kill von Kull, E. by New York bay, S. S. E. by Raritan and Lower bays, W. by Staten Island bay; area, 58½ square miles; contains numerous towns and villages, Midland and South beaches (summer resorts), Sailors' Snug Harbor (home for aged and infirm seamen), and Fort Wadsworth and a line of water batteries, commanding the entrance to New York harbor. Pop. (1928 Est.) 146,644.

**Station**, name applied in Roman Catholic Church to certain places reputed of special sanctity. The word however, is employed in a still more remarkable manner in reference to a very popular and widely-received devotional practice of the Roman Catholic Church, known as that of "The Stations of the Cross." This devotion prevails in all Catholic countries; and the traveler often recognizes it even at a distance by the emblems which are employed in directing its observance — the lofty "Calvary" crowning some distant eminence, with a series of fresco pictures or bas reliefs arranged at intervals along the line of approach. But the same series of images or pictures is ranged round most Roman Catholic churches, usually starting from one side of the high altar and ending at the other. These representations, the subjects of which are supplied by scenes from the several stages of the Passion of our Lord, are called Stations of the Cross, and the whole series is popularly known as the Via Calvarii, or Way of Calvary.

**Statistics**, a collection of facts, arranged and classified, respecting the condition of a people in a state or community, or of a class of people, their health, longevity, domestic economy, their social, moral, intellectual, physical and economical condition, resources, etc., especially those facts which can be stated in numbers, or tables of numbers, or in any tabular and classified arrangement. Also, that department of political science which classifies, arranges, and discusses statistical facts.

**Stature**, the natural height of an animal; bodily height or tallness. (Generally used of human bodies.) The Anthropometric Committee of the

British Association, in 1883, reported that of the natives of the British Isles the Scotch stand first in height, averaging 68.71 inches; the Irish stand second, being 67.90 inches; the English come next, 67.36 inches; and the Welsh last, being 66.66 inches; the Polynesian tribes, 69.33 inches; the Patagonians, whose stature has been much exaggerated, 69 inches; the American whites in the United States, 67.67; the Zulus, 67.19, the American negroes, 66.62; the English Jews, 66.57; the French upper classes, 66.14; the Germans, 66.10; the Arabs, 66.08; the Russians, 66.04; the French working classes, 65.24; the Hindus, 64.76; the Chinese, 64.17; the Bushmen of South Africa, the lowest of stature of any known people, 52.78.

**Staunton**, an independent city of Virginia, formerly the capital of Augusta co.; 135 miles N. W. of Richmond; has important educational institutions. Pop. (1930) 11,990.

**Stavelot**, an ancient town of Belgium, 25 miles S. E. of the city of Liege. It contains a monastery established by St. Remacle, bishop of Tongres, about 669. Only the tower of the old Benedictine Abbey remains, and the shrine of St. Remacle is preserved in the parish church. Charles Martel gained a signal victory over Neustria here in 719. Pop. 6,000.

**Stay**, nautically, a strong rope which stiffens and supports a mast in its erect position, by connecting its head to some part of the hull, or to a part stayed from the hull. The fore-and-aft stays lead forward in the vessel's line amidships; the back stays pass somewhat abaft the shrouds, and are attached to the side of the vessel, at the channels; the breast and standing stays lead from the mastheads down to the gunwale on each side. Spring stays are preventer stays to assist the principal ones. The fore-and-aft stays support the stay-sails by means of hanks. The stays are named from the masts they support; as, the forestay, foretopmast stay, main\*opmast stay, jib and flying-jib stay, bob stay, etc. A jumper stay is a movable stay leading from the head of a mainmast to a pair of eye bolts in the deck close to the after part of the fore rigging. The triatic stay is connected at its ends to the heads of the fore

and main masts, and has a thimble spliced to its bight for the suspension of the stay tackle.

**Stead, William Thomas**, an English journalist; born in Embleton, Northumberland, July 5, 1849. He is widely known as editor of the "Review of Reviews," which he founded in January, 1890. In 1893 he established "Borderland," a periodical devoted to Spiritualism. "If Christ Came to Chicago" is another of his publications. Lost on Titanic, 1912.

**Steadman, Fort**, a defensive work on the James river, about 18 miles below Richmond, Va. It was captured by the Confederates, March 14, 1865, and retaken by the Union troops shortly afterward.

steam at  $212^{\circ}$ , without raising the temperature of the steam at all. If the temperature of steam at  $212^{\circ}$  is lowered by only a very small amount, part of the steam is condensed; hence steam at this temperature is termed moist or saturated steam. At high temperatures and pressures, steam behaves like a perfect gas; but at lower pressures and at temperatures near the boiling point of water, its behavior differs markedly from that of perfect gases; and this change of properties has to be taken into account in all calculations connected with the expansion of steam in steam engines. If instead of allowing the steam to escape freely, the water is boiled in a closed vessel, the steam accumulates, and



STEAMBOAT OF 1812.

**Steam**, in physics, water in its gaseous form. It is a colorless, invisible gas, quite distinct from the visible cloud which issues from a kettle, etc., which is composed of minute drops of water produced by the condensation of the steam as it issues into the colder air. Under ordinary atmospheric pressure, water boils in an open vessel at a temperature of  $212^{\circ}$ , and the steam always has this temperature, no matter how fast the water is made to boil. The heat which is supplied simply suffices to do the work of converting the liquid water at  $212^{\circ}$  into gaseous

both pressure and temperature rapidly increase, till the former becomes several times greater than that of the atmosphere. If now the steam is allowed to escape, it rapidly expands, and if it escapes into the cylinder of a steam engine the expansion can be utilized and converted into work. As the steam expands, its pressure of course becomes less and less till it is not greater than that of the atmosphere; and at the same time its temperature is reduced, the reduction depending on the rapidity with which expansion takes place. The economic

uses of steam are extremely numerous. The most important is that of an agent for the production of mechanical force on railways, in steamboats, and in manufactories. It is also largely employed in warming buildings, in heating baths, in brewing, in distilling, and for cooking purposes.

**Steamboat**, a boat or vessel propelled by steam acting either on paddles or on a screw. The term especially belongs to steam river craft; ocean-going craft being called steamers, steamships, etc. The first steamboat was built by Denis Papin, who navigated it safely down the Fulda as long ago as 1707. Unfortunately this pioneer craft was destroyed by jealous sailors, and even the very memory of it was lost for three-quarters of a century.

The first American to attempt to apply steam to navigation was John Fitch, a Connecticut mechanic, who made his initial experiments in the year 1785. In the first he employed a large pipe kettle for generating the steam, the motive power being side-paddles working after the fashion of oars on a common rowboat. In the second Fitch craft the same mode of propulsion was adopted with the exception that the paddles were made to imitate a revolving wheel and were fixed to the stern.

The last mentioned boat was the first American steam vessel that can be pronounced a success. It made its first trip to Burlington in July, 1788. But, after all, it was not till after the opening of the 19th century that steam navigation started into actual life. In 1801 Symington designed a boat for towing, which attained a speed of  $3\frac{1}{2}$  miles an hour. In 1807 Robert Fulton, an American, in conjunction with one Robert R. Livingston, built the "Clermont" and established a regular packet service between New York and Albany.

The success of this undertaking was so satisfactory that four new boats were built before the end of 1811, at least two of them being designed for service in other rivers.

**Steam Engine.** Steam engines in their infancy were known as "fire" (i. e., heat) engines; and in point of fact the older term is the more correct, because the water or steam is only used as a convenient medium

through which the form of energy which we call heat is made to perform the required mechanical operations. In modern engines sufficient heat is added to the steam to raise it to a very high pressure, and the excess of this pressure over the pressure opposed to it (either atmospheric pressure or the still lower pressure in a condenser) is both the cause and measure of the work done by the engine. In earlier machines, however, the steam was raised only to atmospheric pressure, and admitted into the engine only to be at once condensed by a jet of cold water. The excess of the atmospheric pressure above the pressure in the partial vacuum caused by the condensation was then the direct cause of work. Engines of this kind were called atmospheric engines. The invention of steam as a moving power is claimed by various nations; but the first extensive employment of it, and most of the improvements made on the steam engine, the world undisputably owes to the United States and Great Britain.

The common mode of employing steam in an engine is by causing it to press alternately on the two surfaces of a movable diaphragm or piston enclosed in a fixed steam-tight, cylindrical box. The piston, by means of a rod, passing through the end of the box, is made to communicate motion to the rest of the machinery. The steam is first admitted to one end of the cylinder through an opening or "port," and forces the piston along to the other end. The current of steam from the boiler is then allowed to pass into the other end of the cylinder through the opening, and forces the piston back again to its original position, and so on. But it is obvious that while this return motion is going on the steam previously admitted must be allowed some exit, or the piston could not be forced back. The manner of this exit constitutes the difference between the two principal classes of engines, according as the steam is allowed simply to rush out into the atmosphere or is conducted into a separate vessel and there "condensed."

**Steam Gauge**, an instrument attached to a boiler to indicate the pressure of steam.

**Steam Hammer**, a hammer worked by means of steam. In 1839

James Nasmyth invented the steam hammer called after him, and patented it in 1842. In Nasmyth's hammer the head is attached to the piston rod of an inverted cylinder supported vertically, and the piston is raised by the action of the steam admitted into the cylinder below the piston. The hammer is allowed to fall by its own weight, or is driven downward with still greater velocity by the action of steam admitted into the cylinder above the piston. The admission of steam into the cylinder is regulated by a side valve worked by a lever, and the force of the stroke can be controlled to such an extent by regulating the admission of steam, that the largest hammer can be made to crack a nut, or to come down on a mass of iron with a momentum of many hundred foot tons. The cylinder, which is supported on a strong iron frame work, is very strong, and the steam pipes are of extra length, because of the high pressure at which the steam is employed. The piston rod is of stout wrought iron or steel, and the hammer itself is also of steel. The weight of the hammer ranges from about 200 pounds to 25 tons; and the object to be struck is placed on an anvil consisting of a slab of iron resting on a huge mass of piles and concrete, which frequently descends to great depth into the ground.

**Steamships.** It is believed that the first vessel ever propelled over the water by steam was built in 1785-86 by James Rumsey, of Charleston, in what is now West Virginia. Robert Fulton has been generally recognized by historians as the builder of the first steamboat; but Fulton's steamboat the *Clermont*, was not launched on the Hudson until 1807, and in those very waters he was preceded two years by Col. A. S. Stevens, who built and ran a steam-launch, a portion of whose mechanism is still preserved in the Stevens Institute, in Hoboken.

The development of steamships as measured by construction may be summarized as follows: Up to 1845, wooden construction; then iron began to come into use; about 1855 the screw began to replace the paddle-wheel; between 1865 and 1870 compound engines were introduced; about 1875 steel commenced to replace iron for the structural work; about 1880

triple expansion engines furthered the development; in 1885 two-screws came into use, and since then forced drafts and quadruple-expansion have been developed. The largest early-built steamship was the *Great Eastern*, launched in 1858, her length being exactly one-eighth of a mile, and breadth over paddle-boxes, 118 feet; displacement, 32,160 tons; cost \$3,650,000; speed, 11.13 knots.

Modern construction, developed on practical lines, has surpassed this leviathan of the deep, there being afloat several vessels of over 700 feet in length. Chief among these are the *Kaiser Wilhelm II.* and the *Kronprinzessin Cecilie*, 707 feet, of the North German Lloyd Line, the *Baltic* and *Adriatic*, 726 feet, of the White Star Line, and the *Mauretania* and *Lusitania*, 790 feet, of the Cunard Line. These last two have each a displacement of 45,000 tons and 68,000 indicated horsepower.

Development may be seen in the record speeds achieved in crossing the Atlantic, and these have been widely published for many years, the regular reductions in time exciting much public interest.

The list of record-breakers on the New York and Queenstown route, measuring from Sandy Hook to Roche's Point, about 2,800 miles, follow:

Record trip of the *Lusitania* was made from Queenstown to New York. The record from New York to Queenstown is held by the *Mauretania*: 4 d. 14 h. and 41 min., made Sept. 1909; as is also the westward record made from Queenstown to New York, 4 d. 10 h. 41 min., made Sept. 11, 1910.

Leaving Cherbourg, France, July 18, 1929, at 2:12 a. m., the North German Lloyd Steamship *Bremen* established a new running time to Ambrose Light of 4 d. 17 h. and 42 min. She also set up a new record for single day's running, making 713 miles the last day. Average speed for the entire trip was 27.83 knots or 33 miles an hour.

The *Bremen* is 938 ft. over-all, has a passenger capacity of 2,800, requires a crew of 987 and cost \$15,000,000.

**Steel.** Recent improvement in the metallurgical treatment of iron have so broken down all dividing lines be-



tween malleable iron, cast iron, and steel that there is now much difficulty in defining and limiting any of these forms. Steel may in a general way be defined as a variety or condition of iron capable of being melted and cast, hammered and welded, and of being tempered, or hardened and softened. It is thus in its properties intermediate between malleable and cast iron, and in its composition it also occupies a middle place between these two varieties. The proportion of carbon contained in the metal is the chief element in determining its character, cast iron containing generally from 2.5 to about 5 per cent. of carbon, steel having from .05 to 1.80, and the proportion in malleable iron varying from .016 up to about .34; but there are other circumstances which also go to determine the nature and quality of any of the kinds.

The methods by which steel of various qualities is now produced are numerous, but they may all be included under these heads: (1) The partial decarbonization of cast iron; (2) the addition of carbon to malleable iron; and (3) the complete decarbonization of pig iron, and the addition of the necessary carbon by means of pig iron or other kinds rich in carbon to the molten mass.

Steel presents physical characteristics so distinct from those of malleable iron that it may be for practical purposes regarded as a distinct metal. Its most remarkable physical characteristic is its power of becoming exceedingly hard by sudden cooling from a high heat, and of passing through many grades of hardness downward from that point by the process of tempering. The tempering is accomplished by reheating the metal to a certain degree and allowing it gradually to cool, and according to the heat to which it is raised is the resulting temper, the higher the heat the softer being the steel. Sir Joseph Whitworth has introduced a method of compressing with enormous force cast steel in its fluid state, and he demonstrates that thereby the tensile strength and homogeneity of the metal are increased in a remarkable manner.

An idea of the vast extent of the iron and steel industry of the United States is afforded by the estimate

on Manufactures in 1914, which, treating eight groups of specialized activities, showed totals of 6,068 plants, \$1,284,339,000 wages, and \$6,461,668,000 in combined value of output.

**Steendam, Jacob**, the first poet of New York; born in Holland in 1616. He lived in New Netherlands in 1632-1662; and wrote a small volume of verse, which was reprinted with memoir of the author (The Hague, 1861). The poems are descriptive of life in the colony. The date and place of his death are not known.

**Stefansson, Vilhjalmur**, an Arctic explorer; born in Arnes, Manitoba, Canada, Nov. 3, 1879; was educated at the State Universities of North Dakota and Iowa and at Harvard University. His record of archaeological expeditions, several under the auspices of the Peabody Museum of Harvard University and of Harvard and Toronto Universities jointly, is as follows: To Iceland in 1904 and 1905; to the Eskimos of the MacKenzie delta in 1906-7; to the N. coast of Alaska in 1908-9; to the Coronation Gulf and Victoria Island in 1909-10; to Cape Parry in 1911-12; and to the Arctic regions in 1913-15. In the Coronation Gulf expedition he discovered and lived a year with a race of blonde Eskimos who had never before seen a white person, and in his Arctic expedition of 1913-15 he discovered land previously unknown.

**Stein, Robert**, an American linguist; born in Rengersdorf, Silesia, Prussia, in 1857; came to the United States in 1883 and engaged in teaching. He entered the United States Geological Survey in 1885 and became translator of German, French, Italian, Danish, Swedish, Norwegian, Russian, Dutch, Spanish, Portuguese, and other languages. In 1897 he joined the seventh Peary expedition, and in 1899 took passage on the "Diana" to explore Ellesmereland. He was the author of various articles on economic and social subjects, and Arctic exploration.

**Steinbok**, or **Steenbok**, in zoölogy, the Antelope iragulus, from the stony plains and mountains of South Africa; rather more than three feet long, and about 20 inches high at the



shoulder; red brown above, white below; tail rudimentary, ear large; horns straight, about four inches long in the male, absent in female; no false hoofs. Also, the ibex.

**Stem**, in botany, the ascending axis of a plant. It seeks the light, strives to expose itself to the air, and expands itself to the utmost extent of its nature to the solar rays. It is generally cylindrical; but may be triangular, square, two-edged, filiform, as in flax; or leaf-like. It consists of bundles of vascular and woody tissue embedded in various ways in cellular substance, the whole being inclosed with an epidermis. Stems may be aerial or underground.

In shipbuilding, the upright piece of timber or bar of iron at the fore end of a vessel, to which the forward ends of the stakes are united. With wooden stems the lower end is scarfed into the keel. The upper end supports the bowsprit, and in the obtuse angle is the figure head. The advanced edge of the stem is the cut-water. It is usually marked with a scale of feet, showing the perpendicular height above the keel, so as to mark the draught of water at the forepart.

**Stenay**, a town of N. France, Department of Meuse, 13 miles from the Belgian border, 21 miles N. W. of Verdun, on the Meuse river. It was at one time strongly fortified; now has large iron works. Pop. about 4,000.

**Stencil**, a thin plate of metal, cardboard, leather or other material (brass generally), out of which patterns, numbers, or letters have been cut. The plate is laid on the surface to be painted or marked, and a brush dipped in ink or color is then rubbed over it, the surface receiving the color through the parts cut out of the plate.

**Stenography**. See **SHORTHAND**.

**Stephen**, King of England; son of the Count of Blois by his wife Adela, daughter of William the Conqueror; born in Blois, France, in 1105. Being in England on the death of Henry I., he seized on the crown and royal coffers, to the prejudice of Henry's daughter, Matilda, the empress, and was crowned in 1135. Four years elapsed before Matilda was able to land with forces to dispute Stephen's possession of the throne, and after a

long civil war that lasted nearly the whole reign and in which Stephen was once taken prisoner but released for Matilda's brother, the Earl of Gloucester, it was finally decided that Stephen should retain the crown for his own life, on condition that Prince Henry, Matilda's son by her first husband, should succeed. These terms were concluded in 1154. He died in Dover, England, Oct. 25, 1154.

**Stephens, Alexander Hamilton**, an American statesman; born near Crawfordsville, Ga., Feb. 11, 1812; was graduated at Franklin College in 1828 and admitted to the bar in 1834. He was elected to Congress in 1843; and in 1847 submitted a series of resolutions in relation to the Mexican War, which afterward formed the platform of the Whig party. Shortly after the outbreak of the Civil War he was elected vice-president of the Confederate States of America, and on March 21, 1861, delivered a speech in Savannah, in which he declared slavery to be the cornerstone of the new government. In February, 1865, he was at the head of the Peace Commission of the Confederate government in the Hampton Roads conference. After the war he turned his attention to literary pursuits and published "The War Between the States" and edited the Atlanta "Sun." He was again elected to Congress in 1874, and reelected in 1876 serving till 1882, when he resigned to become governor of Georgia. He died in Atlanta, Ga., March 4, 1883.

**Stephens, Alice Barber**, an American illustrator; born in New Jersey, in 1858; first became prominent as a wood-engraver for "Scribner's Magazine." Later she illustrated extensively for "Harper's Magazine," "The Century," and other publications including the "Ladies' Home Journal." She also taught in the Philadelphia School of Design for Women.

**Stephens, Ann Sophia (Winterbotham)**, an American novelist; born in Derby, Conn., 1813. After 1837 she resided in New York, and was at different times engaged in editorial work. The most noted of her poems is "The Polish Boy"; and of her novels, "Fashion and Famine." She died in Newport, R. I., Aug. 20, 1886.

**Stephens, Charles Asbury**, an American author; born in Norway Lake, Me., in 1847. He published: "Camping Out"; "Off to the Geyers," also works on biology, "Living Matter"; "Pluricellular Man"; and "Long Life."

**Stephens, John Lloyd**, an American author; born in Shrewsbury, N. J., Nov. 28, 1805; was graduated in 1822 at Columbia College; studied law and practised in New York. In 1839 he was sent by the United States government to negotiate a treaty with the government of Central America; and as the result of his experiences and investigations in that country he published "Incidents of Travel in Central America, Chiapas, and Yucatan" (1841); and after further exploration, "Incidents of Travel in Yucatan" (1843), describing the ruined cities and monuments of this part of America. He was one of the organizers of the first Atlantic steam navigation company and one of the first presidents of the company which constructed a railway across the Isthmus of Panama, and superintended the construction. He died in New York city, Oct. 10, 1852.

**Stephens, Uriah Smith**, an American labor reformer; born near Cape May, N. J., Aug. 3, 1821. Dec. 9, 1869, with six others he founded the Knights of Labor. Jan. 1, 1878 was chosen first Grand Master Workman of the General Assembly. He died in Europe Feb. 13, 1882.

**Stephenson, George**, an English engineer; born in Wylam, England, June 9, 1781. In 1812 he was appointed engineer to the colliery, at a salary of \$500 a year. Soon after this he built his first traveling engine to draw the wagons along the tramway, which, though clumsy and weak in power, was immensely superior to any engine then in use. Improvement followed on improvement in rapid succession, not only in the form of the locomotive, but in the rails and in every department to which steam was applicable. In 1822 he opened the first railway, eight miles long. The whole system of railway locomotion with all its complications of stations, signals, tenders, and carriages, was completed by the opening of the Liverpool and Manchester Railway in 1830. In 1845

he retired from all railway undertakings, after having been instrumental in establishing all the foreign and home lines. He died near Chesterfield, England, Aug. 12, 1848.

**Stephenson, Robert**, a British civil engineer, only son of George Stephenson; born near Newcastle-upon-Tyne, Oct. 16, 1803; joined his father in his operations on the Liverpool line; became the permanent engineer of that company; surveyed several new lines, visited South America to inspect the gold and silver mines of that country; and established a name as the first civil engineer in Europe. In 1847 he entered Parliament for Whithy; he was a Fellow of the Royal Society, and a member of nearly all the scientific societies of Europe. He published two valuable works, "The Locomotive Steam Engine," and "The Atmospheric Railway System." He died in London, Oct. 12, 1859, and was buried in Westminster Abbey where there is a memorial window in his honor.

**Steppe**, a term applied to one of those extensive plains which, with the occasional interpolation of low ranges or hills, stretch from the Dnieper across the S. E. of European Russia, round the shores of the Caspian and Aral seas, between the Altai and Ural chains, and occupy the low lands of Siberia. In spring they are covered with verdure, but for the greater part of the year they are dry and barren. There are three different kinds of steppe, viz., grass, salt, and sand steppes, each maintaining peculiar forms of vegetation.

**Stereopticon**, a magic lantern having two objective tubes that can be focused on the same part of a screen, and by the alternate projection of pictures from the separate tubes produce the well-known phenomenon of "dissolving views." The stereopticon has been successfully adapted to the projection of instantaneous photographs of moving objects, producing the same effect of motion on the screen as observed in the kinetoscope.

**Stereoscope**, a simple and popular optical contrivance, by which two flat slightly dissimilar pictures of an object are fused into one image, having the actual appearance of relief. The stereoscope is constructed in ac-

cordance with the visual phenomena which convey to the mind impressions of the relative forms and positions of an object. When a near object having three dimensions is looked at, a different perspective representation of it is seen by each eye; in other words, there is distinct binocular parallax. Certain parts are seen by the right eye, the left being closed, that are invisible to the left eye, the right being closed, and vice versa, and the relative positions of the portions visible to each eye in succession differ. These two visual impressions are simultaneously perceived by both eyes, and are combined into one image, producing the impression of perspective and relief. If, then, truthful right-and-left monocular pictures of any object be so presented to the two eyes that the optic axes, when directed to them, shall converge at the same angle as when directed to the object itself, a solid image will be seen. This is effected with the stereoscope, a reflecting form of which was invented by Professor Wheatstone in 1838.

**Stereotype**, fixed type; hence a plate cast from a plaster or papier-mache mold, on which is a facsimile of the page of type as set up by the compositor, and which, when fitted to a block, may be used under the press, exactly as movable type. A paper matrix is formed by spreading paste over a sheet of moderately thick unsized paper, and covering it with successive sheets of tissue paper, each carefully patted down smooth, and the pack then saturated. The face of the type is oiled, the face of the paper laid on the type, and then the matrix dabbled by a beating brush from the back, so as to drive the soft paper into all the interstices between the letters of the form. A reinforce sheet of damp matrix paper is laid on the back of the matrix, and the matrix beaten again, to perfect the impression and establish a junction. The hollows in the back are filled up, and the matrix, after being covered with a double thickness of blanket, is placed in a press and subjected to strong pressure over a steam chest, the heat of which dries the matrix. The press is unscrewed, the matrix removed, its edges pared, and it is warmed on the mold-

ing press. The matrix is then placed in the previously-heated iron casting mold; a casting gauge to determine the thickness of the stereotype is placed round three sides of the matrix, the other side being left open for a gate, at which the molten metal is poured in. The cover is screwed tight, the mold tipped to bring the mouth up, and the metal poured in. When the metal is set, the mold is opened and the matrix removed. The plate is then trimmed and otherwise prepared in the usual manner. For rotary printing machines both matrix and plate form the segment of a circle to enable the plate to fit on the impression cylinder.

**Sterilized Milk**, milk which has been subjected to a process that destroys the bacteria causing lactic or butyric acid fermentation and the germs of disease.

**Sterling Gold**, gold having the value or fineness of the standard established by the British government. It consists of 22 parts (called carats) of pure gold and two parts of alloy, either silver or copper.

**Sterling Silver**, silver having the value or fineness of the standard established by the British government. It consists of 37 parts of silver and 3 of copper.

**Sternberg, George Miller**, an American surgeon; born in Otsego co., N. Y., June 8, 1838; was graduated at the College of Physicians and Surgeons in New York city in 1860. He was appointed an assistant surgeon in the army in 1861; promoted captain and assistant surgeon May 28, 1866; major, Dec. 1, 1875; lieutenant-colonel Jan. 2, 1891; and Brigadier-General and Surgeon-General May 30, 1893. During the Civil War he served in the Army of the Potomac and in the Department of the Gulf. Afterward he served through several cholera and yellow fever epidemics, and in 1898 at the outbreak of the Spanish-American War he planned the army hospital train, and had charge of the medical service of the army. He was secretary of the Havana Yellow Fever Commission in 1879; president of the American Medical Association in 1898; and the author of "Photo-Micrographs." He died Nov. 3, 1915.

**Sterne, Laurence**, an English humorist; born in Ireland in 1713; died in London in 1768. He graduated M. A. from Jesus College, Cambridge in 1740, received holy orders, and became rector of Sutton and a prebend of York. In 1759 he came into prominence as author of "Tristram Shandy."

**Stettin**, the capital of Pomerania and one of the chief seaports of Germany; on the Oder, 17 miles from its entrance into the Stettiner Haff, 30 miles from the Baltic Sea, and about 83 miles from Berlin. The city has greatly expanded since the removal of the extensive fortifications by which it was surrounded. Among its more notable features are the old royal palace, now occupied as government buildings, the new town hall, two monumental gateways, several Gothic churches, exchange, theater, etc. Its industries include iron founding, ship building, machine making, the manufacture of chemicals, cement, sugar, soap, candles, chocolate, etc. The city is said to date from the 9th century and has been a port of large value since the 12th. In 1806 the city surrendered to France without resistance, and was held by the French till 1813. Pop. (1925) 254,466.

**Steuben, Frederic William Augustus, Baron**, an American military officer; born in Magdeburg, Prussia, Nov. 15, 1730. He came to America in 1777 and his offer of service was readily accepted. Having received the appointment of inspector-general, with the rank of Major-General, he proved of efficient service to the American army in establishing a system of discipline and tactics, a perfect knowledge of which he had acquired as an officer under Frederick the Great. He spent his whole fortune in clothing his men and gave his last dollar to the soldiers. Congress made tardy reparation, and in 1790 voted him an annuity of \$2,500 and a township of land in the State of New York, both of which he divided with his fellow officers. He died on his estate near Utica, N. Y., Nov. 28, 1794. On Dec 7, 1910, a statue to his memory was unveiled in Washington, D. C., with high official ceremonies.

**Steenbenville**, city and capital of Jefferson county, O.; on the Ohio

river and the Pennsylvania Co.'s railroad; 43 miles W. by S. of Pittsburgh; is an important mercantile and manufacturing center; has an abundance of natural gas; produces large quantities of bituminous coal, iron, glass, and pottery. Pop. (1930) 35,422.

**Stevens, Benjamin Franklin**, an American bibliographer; born in Barnet, Vt., Feb. 19, 1833; was engaged for more than 30 years in making a manuscript chronological and alphabetical catalogue index of American papers in many archives in England, Holland and Spain; made facsimiles of many such manuscripts; and devoted much time to the compilation of unpublished manuscript papers pertaining to the American Revolution. Died 1902.

**Stevens, Henry**, an American bibliographer; born in Barnet, Vt., Aug. 24, 1819; was graduated at Yale College in 1843; became interested in the Colonial history of the United States; went to England in search of American historical data in 1845, and there succeeded in gathering an immense amount of valuable material relating to the early history of the United States. His publications include: "Catalogue of a Library of Works Relating to America," etc. Died in South Hampstead, England, Feb. 28, 1886.

**Stevens, John Austin**, an American historian; born in New York city, Jan. 21, 1827. He was secretary of the Chamber of Commerce, librarian of the New York Historical Society, and founder of the "Magazine of American History." D. 1910.

**Stevens, John F.**, engineer; born in Gardiner, Me., Apr. 25, 1853. After much railroad engineering, notably on the Great Northern line in the Cascade Mountains, he was chief engineer of the Panama Canal in 1905-07.

**Stevens, Thaddeus**, statesman; born in Danville, Vt., Apr. 4, 1792. He graduated at Dartmouth College in 1814, became a lawyer and in 1828 a prominent Whig. In 1848 and again in 1850 he was elected to Congress, where he maintained strong opposition to the Fugitive-Slave Law, the Kansas-Nebraska bill, and all measures favoring the independence of the South. In 1858 he was again elected

to Congress and retained his seat till his death, in Washington, D. C., Aug. 11, 1868.

**Stevens Institute of Technology**, an educational non-sectarian institution in Hoboken, N. J.; founded by Edwin A. Stevens in 1870.

**Stevenson, Adlai Ewing**, an American statesman; born in Christian co., Ky., Oct. 23, 1835; early took an active part in politics as a Democrat, and in 1875-1877 and 1879-1881 represented Illinois in the National House of Representatives. In 1885 was appointed first assistant postmaster-general, and after the renomination of Grover Cleveland in 1892 was chosen the candidate for the vice-presidency. The Democratic candidates were elected, and after the expiration of his term he was appointed a member of the American commission to visit Europe to secure the adoption of international bimetalism. He died June 15, 1915.

**Stevenson, Edward Irenæus**, an American journalist; born in Madison, N. J., in 1858. He was editorially connected with the New York "Independent" after 1881, and also with "Harper's Weekly" and several musical journals.

**Stevenson, Robert Louis Balfour**, a British author; son of Robert Stevenson; born in Edinburgh, Scotland, Nov. 13, 1850; educated at the University of Edinburgh, was intended for his father's profession, but studied law; in 1873 went abroad for his health; wrote for periodicals till 1878, when his first book appeared; visited California in 1879; spent the winter of 1887-1888 in the Adirondacks; cruised in the Pacific; bought a tract of land ("Vailima" or "Five Streams") in Samoa, where he made his home. He published a large number of works. He died in Vailima, near Apia, Samoa, Dec. 3, 1894.

**Steward**, in the original sense, one who looked after the domestic animals and gave them their food; hence, one who provides for his master's table, and, generally, one who superintends household affairs for another. A person employed on a large estate or establishment, or in a family of consequence and wealth, to manage the domestic affairs, superintend the other

servants, collect rents, keep the accounts, etc. An officer in a college who provides food for the students and superintends the affairs of the kitchen.

**Stewart, Alexander Peter**, an American military officer; born in Rogersville, Tenn., Oct. 2, 1821; was graduated at the United States Military Academy in 1842. During the Civil War he served under Generals Bragg, Johnston, Hood, and others in the Confederate army; was chancellor of the University of Mississippi in 1874-1886; commissioner of the Chickamauga National Park from 1890 till his death, Aug. 30, 1908.

**Stewart, Alexander Turney**, an American merchant; born near Belfast, Ireland, Oct. 12, 1803; came to the United States in 1823 and engaged in teaching. In 1825 he began, in New York city, a dry-goods business which gradually expanded into one of the largest mercantile concerns in the world. He died in New York, April 10, 1876. His body was stolen from the grave in New York city, and ransom demanded. It is understood that his widow paid \$25,000 for the return of the remains which were then entombed in the Cathedral at Garden City, Long Island.

**Stewart, Charles**, an American naval officer; born in Philadelphia, Pa., July 28, 1778; entered the navy in 1789 as lieutenant of the frigate "United States." As commander of the brig "Siren" he participated in the naval operations of 1804 against Tripoli and aided in the destruction of the "Philadelphia." In 1813 he took command of the "Constitution," and in December sailed from Boston on a cruise to the coast of Guiana and the Windward Islands, which resulted in the capture of the British schooner "Picton" and several merchant vessels. He commanded a squadron in the Mediterranean in 1816-1820, and in the Pacific in 1821-1823; served on the board of navy commissioners; commanded the home squadron; and had charge of the naval station at Philadelphia. In 1857 he was placed on the retired list, but resumed service in 1859 as commander of the Philadelphia navy yard, and on July 16, 1862, was made rear-admiral



on the retired list. He died in Bordenstown, N. J., Nov. 7, 1869.

**Steyn, Martinus Theunis**, a Boer statesman; born in Winburg, Orange Free State, Oct. 2, 1857; worked on his father's farm till 1876, when he went to England to study. He returned to Africa in 1882 and practiced law in Bloemfontein till 1889, when he was made second puisne judge and state attorney. Later he became first puisne judge, and in 1896 was chosen president of the Orange Free State. For a number of years before his election to the presidency he had been in communication with President Kruger and their close relations finally resulted in the union of the interests of the Orange Free State and the Transvaal in their struggle against Great Britain. When the Boer War broke out he took the field in person with the Free State troops. After the surrender he went to Europe seriously ill, but has partly recovered. D., 1916.

**Stigma** (plural, **Stigmas**, or **Stigmata**), a mark made with a red-hot iron; a brand impressed on slaves and others; also a small red speck on the human skin, causing no elevation of the cuticle; a natural mark or spot on the skin; figuratively, any mark of infamy, disgrace, or reproach which attaches to a person on account of bad conduct; a slur. In anatomy, the projecting part of a Graafian follicle at which rupture occurs. In biology, stigmata are the external openings of the tracheal apparatus in the Insecta and Arachnida. In botany, the part of the pistil to which the pollen is applied. It is generally situated at the upper extremity of the style.

**Stigmatization**, the appearance or impression of counterparts of all or some of the wounds received by Jesus in His Passion, in their appropriate positions on the human body. The first case on record, and the most important, is that of St. Francis of Assisi, the founder of the Franciscans. It is said that while the saint was engaged in a fast of 40 days on Mount Alvernus, in the year 1224, a crucified seraph with six wings appeared and discoursed to him of heavenly things. Francis fainted, and on recovering consciousness found himself marked with the wounds of crucifixion in his hands, his feet, and right side. Thomas

a Celana and St. Buonaventura attested the case, and Pope Alexander IV. (1254-1261) claimed to have seen the stigmata during the lifetime of St. Francis and after his death.

**Stiletto**, a small dagger, with a round pointed blade from 6 to 12 in. long, introduced in the Middle Ages.

**Stilicho, Flavius**, a Vandal of great genius and bravery, who distinguished himself at the declining period of the Roman empire, was advanced to the highest dignities of the state by Theodosius the Great, and married Serena, the emperor's adopted daughter, besides being intrusted in 394 with the guardianship of his two sons, Arcadius and Honorius. On the division of the empire, Stilicho became virtual governor of the West, in the character of first minister to Honorius, while the same power in the East was exercised by Rufinus, under Arcadius, the other emperor. The military genius of Stilicho, after this period, was exhibited in the reduction of Africa, which had been led into a revolt by Eutropius the successor of Rufinus at the Eastern court, and subsequently in the great contests with Alaric and Radagasius. While Stilicho lived he sustained the fortunes of the Roman name, but he was accused of having a secret understanding with Alaric, and was treacherously put to death in 408. The wives and children of 30,000 Germans who were in his service were massacred at the same time.

**Still**, an apparatus for distillation. It consists essentially of a vessel in which the liquid to be distilled is placed, the vapor being conducted by means of a head or neck to the condenser or worm, where it is cooled by water or other means, and again forms liquid. The still itself varies greatly according to the purpose for which it is used. It is made of copper, iron, earthenware, or glass, and is heated by naked flame or steam heat.

**Still, William**, an American philanthropist and anti-slavery advocate, of African descent; born in Shamony, N. J., Oct. 7, 1821; was chairman and secretary of the Philadelphia branch of the famous "underground railroad" of 1851-1861, and wrote out the narratives of escaping slaves,

which constitute the only full account of this organization. He died 1902.

**Stille, Charles Janeway**, an American historian; born in Philadelphia, Pa., Sept. 23, 1819; was graduated at Yale College in 1839, and admitted to the bar, but devoted himself to literary pursuits. During the Civil War he was an active member of the United States Sanitary Commission, of which he afterward became the historian. In May, 1866, he was made Professor of History and English Literature in the University of Pennsylvania, and in 1868 was chosen its provost. He died in 1899.

**Stillman, Thomas Bliss**, an American chemical engineer; born in Plainfield, N. J., May 24, 1852; studied chemical engineering in Wiesbaden, Germany. Returning to the United States he was made professor of analytical chemistry at Stevens Institute of Technology in 1886. He became a member of the principal engineering societies, and was editor of the Stevens Institute "Indicator" in 1895-98. He died Aug. 10, 1915.

**Stillman, William James**, an American artist, journalist, author, and traveler; born in Schenectady, N. Y., June 1, 1828; was graduated at Union College in 1848; founded and edited the "Crayon," an art journal in New York. He was for many years a correspondent of the London "Times" and the New York "Evening Post." He was consul-general to Crete, 1865-1869. He died in Frimley Green, Surrey, near London, England, July 8, 1901.

**Stilson, Daniel Chapman**, an American inventor; born in Durham, N. H., March 25, 1830; was a machinist in the Charleston navy yard, and in 1862 was appointed assistant engineer in the navy. After the Civil War he resumed his trade as a machinist and later invented a wrench that made his name known throughout the mechanical world, and devised other apparatus including a safety fire sprinkler. He died in Somerville, Mass., Aug. 21, 1899.

**Stimson, Frederic Jesup**, an American lawyer; born in Dedham, Mass., July 20, 1855; was graduated at Harvard University in 1876, and at Harvard Law School in 1878; was chosen general counsel to the United

States Industrial Commission. He was the author of several law books, novels, essays, etc., as "J. S. of Dale."

**Stimulants**, in pharmacy, agents which increase vital action, first in the organ to which they are applied, and next in the system generally. Stimulants are of three kinds, stomachic, vascular, and spinal. The name is popularly restricted to the first of these, which act on the stomach, expelling flatulence, besides allaying pain and spasm of the intestines. They are also called carminatives. Examples, ginger, capsicum and chillies, cardamoms, mustard, pepper, etc.

**Sting**, in botany, a stinging hair. Stinging hairs are sharp, stiff hairs, containing an acrid fluid which is injected into the wound which they produce; stimuli. Example, the nettle, in which the apex is expanded into a little bulb which is broken off when the sting is slightly touched. In entomology, a weapon of defense, concealed within the abdomen of bees, wasps, etc., and capable of exertion, or forming part of the last joint of the tail in scorpions. The sting of the bee appears to the naked eye a simple needle-shaped organ; but the microscope shows that it is formed of three pieces: A short, stout, cylindric-conical sheath containing two setæ, or lancets, one edge thickened and furnished with teeth directed backward, the other sharp and cutting. The poison apparatus consists of two glandular elongated sacs, and terminates by one or two excretory ducts. Morphologically viewed, a sting is an altered oviduct. The term sting is sometimes inaccurately used for the bite of a venomous serpent, and of the forked tongue of snakes.

**Stingray**, a fish allied to the rays proper. It is remarkable for its long, flexible, whip-like tail, which is armed with a projecting bony spine, very sharp at the point, and furnished along both edges with sharp cutting teeth. One species is common on the E. coasts of North America. These fishes sometimes inflict serious wounds with their tails.

**Stinkwood**, a tree of the natural order Lauraceæ, a native of the Cape of Good Hope, remarkable for the strong disagreeable smell of its wood, which, however, is hard, very durable,

## Stipa

takes an excellent polish, and resembles walnut. It has been used in shipbuilding.

**Stipa**, feather grass. Steudel describes 104 species. They are widely distributed, but are most abundant in warm countries. The common feather grass has rigid, setaceous, grooved leaves, and exceedingly long awns, feathery at the point. It is very ornamental in gardens in summer, and if gathered before the seeds are ripe it retains its long feathery awns, and is sometimes dyed various colors and used for decorative purposes.



A STINGRAY.

**Stirrups**, a leather strap or similar device, suspended from a saddle and having at its lower end a loop, ring, or other suitable appliance for receiving the foot of the rider, and used to assist him in mounting a horse, as well as to enable him to sit steadily in the saddle while riding, and also to relieve him by supporting a part of the weight of the body.

**Stitchwort**, a genus of which there are about 70 species—all slender herbs, widely distributed through the temperate and cold regions of the globe. The best known members are the great stitchwort which from its large white flowers in early summer is an ornament of hedgerows and pastures; wood stitchwort and the chickweed, native through Arctic and N.

## Stockholm

temperate regions, and now a cosmopolitan naturalized weed. The great stitchwort was supposed to cure "stitch" in the side, hence the name.

**Stock**, a name originally applied to a cruciferous garden plant (called more fully stock gillyflower), but now extended to certain allied plants of the same order. They are herbaceous or shrubby, biennial or sometimes perennial, and have single or double fragrant flowers. The Virginia stock has been introduced from the Mediterranean, and like the species already mentioned is a great favorite in the flower garden on account of its beauty and fragrance.

**Stockade**, an inclosure or pen made with posts and stakes. In civil engineering, a row of piles, or a series of rows with brushwood in the intervals, driven into a sea or river shore, to prevent the erosion of the banks. In fortification, stout timbers planted in the ground so as to touch each other, and loopholed for musketry. In its most effective form it is eight or nine feet high, has a ditch in front and a banquette in the rear.

**Stock Dove**, the common wild pigeon, 14 inches in length, and with a general bluish gray plumage, the breast being purplish. It raises two or three broods in a season and builds its nest in a tree stump or in a rabbit burrow.

**Stock Exchange**, a market for the purchase and sale of public stocks, shares, and other securities of a similar nature. Such institutions are now found in all large cities of the United States. The New York Stock Exchange was founded in 1792.

**Stockholm**, the capital of the kingdom of Sweden; on several islands and the adjacent mainland, between a bay of the Baltic and Lake Malar; in a situation that is accounted one of the most picturesque in Europe. The nucleus of Stockholm is an island in mid-channel called "the Town"; on it stand the imposing royal palace (1697-1754); the principal church (St. Nicholas), in which the kings are crowned; the House of the Nobles (1648-1670), in which that class hold their periodical meetings; the town house; the ministries of the kingdom; and the principal wharf, a magnificent

## Stock Jobbing

granite quay, fronting E. Immediately W. of the central island lies the Knights' Island; it is almost entirely occupied with public buildings, as the Houses of Parliament; the old Franciscan Church, in which all the later sovereigns of Sweden have been buried; the royal archives; and the chief law courts of the kingdom. There is considerable industry in the making of sugar, tobacco, silks and ribbons, candles, linen, cotton, and leather, and there are large iron foundries and machine shops. The water approaches to the city are in general rendered inaccessible by ice during three or four months every winter; but to remedy this defect it is proposed to build a new harbor at Nynas on the Baltic shore, 30 miles to the S. In spite of the winter drawback Stockholm is the seat of a trade sufficient to bring an average of 1,760 vessels of 635,000 tons into the port every year, carrying principally grain (wheat and rye), rice, flour, herrings, oils and oilcake, cork, groceries, metals, and wine and spirits (imports). The commodities exported consist chiefly of iron and steel, oats, and tar. Though Stockholm was founded by Birger Jarl in 1255, it was not made the capital of Sweden till modern times. Pop. (1928) 464,699.

**Stock Jobbing**, the practice of dealing in stocks or shares, especially by persons who buy and sell on the stock exchange on their own account and not for clients, as do the stockbrokers properly so called.

**Stocks**, an apparatus formerly used for the punishment of petty offenders, such as vagrants, trespassers, and the like. It consisted of a frame of timber, with holes, in which the ankles, and sometimes the ankles and wrists, of the offenders were confined. In finance, a stock is a fund employed in the carrying on of some business or enterprise, and divided into shares.

**Stockton**, city and capital of San Joaquin county, Cal.; on a branch of the San Joaquin river, and the Southern Pacific and other railroads; 48 miles S. by E. of Sacramento; has daily steamboat connection with San Francisco; grows and ships large quantities of barley, wheat, fruit, and vegetables; manufactures wine, woolen goods, and farm implements; and

## Stockyard

contains a State Hospital for the Insane, St. Mary's College, St. Agnes's Academy, and Hazelton Public Library. Pop. (1930) 47,963.

**Stockton, Francis Richard**, an American author; born in Philadelphia, Pa., April 5, 1834; became an engraver and draughtsman; was connected with the Philadelphia "Post," and with "Hearth and Home," New York; joined the editorial staff of "Scribner's Monthly," and became assistant editor of "St. Nicholas"; his earliest writings were odd tales for children, but he attained an enviable reputation as a writer of highly entertaining short stories. He died in Washington, D. C., April 20, 1902.

**Stockton, Robert Field**, an American naval officer; born in Princeton, N. J., Aug. 20, 1795; entered the navy in 1810. He was one of the earliest advocates of a steam navy; drew the plans for the steam sloop of war "Princeton," the explosion of one of whose guns at Washington in 1844 caused the death of the secretaries of war and the navy; was actively interested in the construction of the Delaware and Raritan canal; and during the Mexican War, as commander of the naval force on the Pacific, took possession of California in the name of the United States. On his return in 1850 he resigned his commission; entered politics; and in 1851 was elected to the United States Senate, where he introduced and put through a bill for the abolition of flogging in the navy, and also urged the adoption of measures for coast defense. In 1853, however, he retired from the Senate, and devoted himself to the development of the Delaware and Raritan canal. He died in Princeton, N. J., Oct. 7, 1866.

**Stockyard**, an inclosure for cattle on the way to or at market. With the development of the Central and Western States of the Union there arose a necessity for central markets for the disposition and distribution of the enormous live stock production of these regions. To meet such a demand there were established at convenient points at the convergence of the great lines of railway, immense stockyards. By this term is not to be understood merely inclosures into which live stock

can be driven and herded, but all the buildings and conveniences necessary for the shipping, to all parts of the world, of the animals there collected either "on the hoof" or in the various forms in which their slaughtered carcasses are known to commerce. During the earlier years of this particular branch of domestic enterprise the centers of the business were unsettled, and we find various cities throughout the great cattle-raising regions disputing for supremacy in the amount of business done. Great stockyards were established and still exist in Cincinnati, Indianapolis, East St. Louis, Kansas City, Chicago, and other cities. Owing to the remarkable growth of Chicago, not many years elapsed before that city had outstripped all competitors. Besides the great establishments of the West and Northwest there are like institutions of minor importance distributed throughout other portions of the Union.

**Stoddard, Amos**, an American military officer; born in Woodbury, Conn., Oct. 26, 1762. He fought in the Revolutionary War; was governor of Missouri Territory in 1804-1805; served in the War of 1812; published "Sketches of Louisiana" (1812); and died in Fort Meigs, O., May 11, 1813.

**Stoddard, Charles Warren**, an American author; born in Rochester, N. Y., Aug. 7, 1843; for seven years special traveling correspondent of the San Francisco "Chronicle," visiting nearly every quarter of the globe; from 1885 to 1887 Professor of English Literature at Notre Dame College, Indiana; and from 1889 at the Catholic University of America. He died April 24, 1909.

**Stoddard, Elizabeth Drew (Barstow)**, an American novelist and poet; born in Mattapoisett, Mass., May 6, 1823. She was the wife of Richard H. Stoddard, and the author of three distinguished novels, "The Morgesons"; "Two Men"; "Temple House," illustrative of English character and scenery (1867). She died Aug. 1, 1902.

**Stoddard, Richard Henry**, an American poet; born in Hingham, Mass., July 2, 1825. In 1849 he pro-

duced a small volume of poems only to suppress it afterward; but 1852 saw the birth of a sturdier collection. From 1853 to 1870 he served in the New York custom house; in 1870-1873 was clerk to General McClellan and for a year city librarian; he did also much reviewing and writing for the publishers. His poems include "Songs in Summer"; "The King's Bell" etc. He wrote also "Life of Humboldt"; "Abraham Lincoln"; "Life of Washington Irving." He died in 1903.

**Stoddard, William Osborn**, an American author; born in Homer, N. Y., Sept. 24, 1835; was graduated at the University of Rochester in 1857, and after serving for a short time in the Civil War was made secretary to President Lincoln, which office he held till 1864 when he became United States marshal of Arkansas. Subsequently he engaged in business and journalism in New York city, where he also held several public offices under the municipal government. He was the author of numerous stories, sketches and poems, including "Life of Abraham Lincoln," etc.

**Stoics**, the name applied to a body of philosophers who flourished first in Greece about the 4th century, but whose influence finally spread over the whole classical world. Their place in the history of philosophy is immediately after Plato and Aristotle. These two mighty geniuses had in turn made the greatest efforts that have ever been made to give finality to philosophy, by putting forth a reasoned theory of the universe. Later thinkers began to seek rather for a practical system by which to live than to again attempt to solve the secret of existence. Hence stoicism is a code of practical rules as much as a reasoned theory; still, as it was the former in a philosophical manner, it necessarily had the latter. The leading thought of the Stoics may be thus stated. They divided philosophy into three parts—logic, physics, and ethics. "Logic supplies the method for attaining to true knowledge; physics teach the nature and order of the universe; and ethics draw thence the inferences for practical life." Though stoicism as a system fell to pieces with the ancient world, it essentially



reappeared in the ascetic forms of Christianity and other religions. But the reason is, not that they were descended from stoicism, but that both came from a common source. Stoicism has its origin in human nature. It is not all truth, but truth is many sided and this system is at least one aspect of it.

**Stokes, Frank Wilbert**, an American artist; born in Nashville, Tenn. In 1892 while employed as an artist for Charles Scribner's Sons, he accompanied the Peary relief expedition, and in 1893-1894 he was with the North Greenland expedition. He became identified with the Anthropological Society, the Geographical Society, the Polar Research Club, and the Academy of Natural Sciences in Philadelphia. His publications include essays on "Color in the Far North," etc.

**Stola**, a loose garment worn by Roman matrons over the tunic. To the bottom of it a border or flounce was sewed, the whole reaching down so low as to conceal the ankles and part of the feet. It was the characteristic dress of the Roman matrons, as the toga was of the men; divorced women or courtesans were not allowed to wear it. It was usually gathered and confined at the waist by a girdle, and frequently ornamented at the throat by a colored border. It had either short or long sleeves, and was fastened over the shoulder by a fibula.

**Stole**, a long, loose garment extending to the feet; also the sucker or shoot of a plant. In the Roman Catholic Church, a narrow band of silk or stuff, sometimes enriched with embroidery and jewels, worn on the left shoulder of deacons, and across both shoulders of bishops and priests, pendent on each side nearly to the ground;—used in the administration of the sacraments and all other sacred functions.

**Stolon**, in botany, a branch which, as of the currant, gooseberry, etc., naturally curves or falls down to the ground, where, favored by shade and moisture, it strikes root, and then forms an ascending stem, capable of drawing its nourishment directly from the soil, and, by the perishing of the portion which connects it with the

parent stem, at length acquiring an entirely separate existence.

**Stomach**, in comparative anatomy, a membranous sac, formed by a dilatation of the alimentary canal, in which food is received and subjected to the processes of digestion among the Vertebrata. The human stomach is an elongated, curved pouch, from 10 to 12 inches long, and four or five inches in diameter at its widest part, lying almost immediately below the diaphragm, nearly transversely across the upper and left portion of the abdominal cavity, and having the form of a bagpipe. It is very dilat-able and contractile, and its average capacity is about five pints. The food enters the stomach through the cesophagus by the cardia or cardiac orifice, and after having been acted on by the gastric juice, is passed on in a semi-fluid or pulpy state through the pylorus into the small intestines. Ow-ing to the recent improvements in electrical apparatus, the physiology and pathology of the human stomach in life is becoming much better known. Medical electricians have recently devised a plan by which the interior of the human stomach may be illuminated for examination. The patient is laid on the operating table and a slender tube, carrying a glass bead on its end, is introduced into the stomach. A small light inside the bead is supplied by fine wires running out through the tube and connected to a small battery. The interior of the stomach is plainly lighted and all its parts are brought into view by a small movable mirror at the end of the tube.

**Stomach Pump**, in surgery, a suction and force pump for withdrawing the contents of the stomach in cases of poisoning, etc., and also used as an injector. It resembles the ordinary syringe, except that it has two apertures near the end, in which the valve opens different ways, so as to constitute a sucking and forcing passage.

**Stone**, a hard concretion of some species of earth, as lime, siliceous, clay, and the like; also, the material obtained by quarrying rocks. The principal component parts are siliceous, alumina, zirconia, glucina, lime, and magnesia.

The production of different kinds of stone in the United States broke

the record in 1913, when it reached a total value of \$83,732,995. Limestone ranked first, with an output of \$38,745,429, and was followed, in the order given, by granite, \$20,793,800; trap rock, \$9,289,809; marble, \$7,870,890, and sandstone (including bluestone), \$7,033,067.

**Stone, Charles Pomeroy**, an American military officer; born in Greenfield, Franklin co., Mass., in 1826; was graduated at the United States Military Academy and entered the army as lieutenant of ordnance in 1845; served with distinction in the Mexican War, and subsequently settled in California. At the breaking out of the Civil War he was the first volunteer officer sworn into the service; after a short period of military duty he was arrested and imprisoned in Fort Lafayette, where he remained for a year; after his release he rejoined the army and went with General Banks up the Red River, serving till the end of the war; resigned from the army in 1864. He subsequently went to Egypt and served as chief of staff in the Egyptian army, receiving the title of pasha. He was an engineer and his last work was as engineer-in-chief in charge of the building of the pedestal of the Statue of Liberty in New York harbor. He died in New York city, Jan. 24, 1887.

**Stone, Charles Wellington**, an American educator; born in Templeton, Mass., Dec. 13, 1853; was graduated at Harvard University in 1874; founded a college preparatory school in 1879; and was secretary of the Handel and Haydn Society in 1890-1897. His publications include "Needles of Pine," school books; and essays on historical and educational subjects.

**Stone, Ellen M.**, an American missionary; born in Roxbury, Mass., July 24, 1846. She went to Bulgaria as a missionary in 1878. About Sept. 1, 1901, with a companion, Mme. Tsilka, a native Bulgarian teacher, she was kidnapped by brigands who a few days later demanded an indemnity of \$110,000, the money to be paid within 30 days. On Sept. 5, the news of Miss Stone's detention reached the United States, and her friends immediately notified the State Depart-

ment at Washington and began a popular subscription to raise the required amount. The United States government communicated with the Bulgarian and Turkish authorities, who ordered troops to search for the retreat of the brigands for the purpose of releasing the captives. The troops were later ordered to cease pursuit, presumably at the instance of the United States, fear being expressed lest the presence of the soldiers would lead to the torture or murder of Miss Stone. More than one-half of the indemnity was raised by subscription, readers of the "Christian Herald" being large contributors, and it was intimated that the United States would guarantee the whole amount and afterward demand damages from the Turkish government for the outrage. On Feb. 6, \$72,500 of the ransom demanded was paid, and on Feb. 23 Miss Stone was released.

**Stone, James Samuel**, an American clergyman; born in England, April 27, 1852; was graduated at the Philadelphia Divinity School in 1877 and at the Cambridge Theological School in 1880; was ordained in the Protestant Episcopal Church in 1877; and held pastorates in Toronto, Montreal, and Philadelphia in 1877-1895. In the latter year he became rector of St. James Church, Chicago.

**Stone, Lucy (Blackwell)**, an American reformer; born in West Brookfield, Mass., Aug. 13, 1818. She was graduated at Oberlin College in 1847. In 1855 she married Dr. Henry B. Blackwell, retaining her own name. She published a protest, "Taxation without Representation." In 1869 she helped organize the American Woman's Suffrage Association; became connected with the "Woman's Journal" in 1872, and was editor after 1888. Her lectures on woman suffrage made her known throughout the country. She died in Boston, Mass., Oct. 18, 1893.

**Stone, Marvin Chester**, an American inventor; born in Portage co., O., in 1842; was the inventor of a machine for making paper cigarette holders; a process for making paper "straws" for use with cold drinks; and a method of coloring china in imitation of the famous "peach-blow"

vase. He was highly successful as a manufacturer and engaged extensively in philanthropic projects. He died in Washington, D. C., May 17, 1899.

**Stone, Melville Elijah**, an American journalist; born in Hudson, Ill., Aug. 22, 1848. In 1881 with Victor F. Lawson he founded the Chicago "Morning News" which subsequently became the Chicago "Record." Owing to ill health he retired from newspaper work in 1888 and spent several years abroad. Returning to the United States he settled in New York city, and was made general manager of the Associated Press.

**Stone, Ormond**, an American astronomer; born in Pekin, Ill., Jan. 11, 1847; Director of the Cincinnati Observatory (1875); and Professor of Astronomy and Director of the Observatory of the University of Virginia (1882). His principal astronomical work has been in the field of double-star observations and the discovery of nebulae. He was editor of the "Annals of Mathematics," published at the University of Virginia.

**Stone Age**, or **Age of Stone**, is a term used in archaeology to denote the condition of a people using stone as the material for the cutting tools and weapons which, in a higher condition of culture, were made of metals. The expression "age," when used in this connection, is not therefore significant of a fixed period in chronology, but implies merely the time, longer or shorter, earlier or later, during which the condition subsisted. The duration of such a condition must necessarily have varied from various causes in different areas, and chiefly in consequence of contact with higher degrees of culture. Populations placed in remote situations, and on that account remaining uninfluenced by such contact — like the islanders of the South Pacific and the Eskimos of the extreme North for instance — have remained in their stone age to the 20th century. On the other hand, the populations of the European area, in portions of which there were successive centers of high culture and civilization from a very early period, had all emerged from their stone age, through the use of bronze, many centuries before the Christian era.

E-74

**Stone Chat**, an insectorial bird of the family of warblers. The stone chat is common in Europe, and frequents moors and other open wastes.



STONE CHAT.

Its color on the upper part generally is black, the belly is yellowish white, and the breast a light chestnut brown. It runs with much celerity. It is accidental in the N. part of North America.

**Stone Fly**, a genus of insects. The hind wings are broader than the fore wings, and folded at the inner edge. The body is elongated, narrow, and flattened; the wings fold close to the body, which generally bears two terminal bristles. A number of species are well known to anglers as an attractive lure for fishes.

**Stone Fruits**, a name popularly applied to those fruits in which the single kernel is enclosed in a stone, and this enveloped in an edible pulpy mass covered by a thin skin. Examples are found in the cherry, peach, plum, olive, etc. Botanically this kind of fruit is called a drupe, the skin being the epicarp, the pulp the mesocarp, and the hard shell of the seed the endocarp.

**Stoneman, George**, an American military officer; born in Busti, N. Y., Aug. 8, 1822; was graduated at the United States Military Academy in 1846. In August, 1861, he became Brigadier-General of volunteers and chief of cavalry in the Army of the Potomac. He commanded the cavalry in the Peninsular campaign of 1862, and distinguished himself in the battle of Williamsburg on May 5 of that year; was promoted Major-General of volunteers in the following November. He was promoted colonel of the 21st

## Stone Plover

Infantry in July, 1866, and was brevetted Brigadier-General and Major-General U. S. A., in recognition of his meritorious services. In August, 1871, he resigned from the army and settled in California, of which State he was Democratic governor in 1883-1887. He died in Buffalo, N. Y., Sept. 5, 1894.

**Stone Plover**, a large species of plover. It appears in England at the latter end of April, frequents open hilly situations; makes no nest, but lays two eggs on the bare ground, and emigrates in small flocks about the end of September.

**Stonewall Jackson**, a name given to Gen. T. J. Jackson during the Civil War.

**Stoneware**, a very hard kind of pottery, with which are made jars, drain pipes, and a variety of chemical utensils. It is constituted of plastic clay, united in various proportions with some felspathic mineral sands of different kinds, and in some cases with cement, stone, or chalk. These mixtures are then subjected to a heat sufficiently great to cause a partial fusion of the mass. This condition of semi-fusion is the distinguishing character of stoneware. The finer varieties of stoneware are made from carefully selected clays, which when burnt will not have much color. These are united with some fluxing substance, by which the particular state of semi-fusion above mentioned is brought about. Formerly the glaze of stoneware was always a salt glaze; recently, however, it has been customary to glaze with a mixture of Cornish stone, flint, etc., as in the manufacture of earthenware.

**Stone Worship**, divine honors paid to stones either as the embodiments or the representatives of deities. It is a part of stock-and-stone worship, dating from remote antiquity, and was once widespread. Grote notes that it existed among the ancient Greeks. It lingered on in France and Europe till the Early Middle Ages, in Norway till the end of the 18th century.

**Stony Point**, a small rocky promontory on the W. bank of the Hudson river, opposite Verplanck's Point, 42 miles N. of New York city, at the

## Stork

entrance to the Highlands. A fortification of some importance in the Revolutionary War, it was captured and strengthened by the British, but was recovered in a night attack by Wayne. It is connected by a marsh with the shore, and supports a light-house and fog-bell tower. In the village here is the house where Benedict Arnold held his treasonable interviews. The property at Stony Point, consisting of 34 acres, has been acquired by the State for a public park, \$25,000 having been appropriated for that purpose by the legislature in 1897.

**Storer, Bellamy**, diplomat, born at Cincinnati, O., Aug. 28, 1847. He graduated from Harvard Univ. 1867, from Cincinnati Law School 1869, and practiced as a lawyer. He was elected member of Congress 1891-95; was minister to Belgium 1897-99; to Spain 1899-1902; and to Austria-Hungary 1902-06. He was "separated from the service" and returned to the United States, the disclosures of religious and feminine ambition in his career providing a sensation in Dec., 1906, through a tilt in official polemics with Pres. Roosevelt.

**Storer, Francis Humphreys**, an American chemist; born in Boston, Mass., March 27, 1832; was chemist of the United States Exploring Expedition in 1853; studied in Europe in 1855-1857; and followed his profession in Boston in 1857-1865. He held the chair of industrial and general chemistry at the Massachusetts Institute of Technology in 1865-1870; then became Professor of Agricultural Chemistry at the Bussey Institution. He died July 30, 1914.

**Storer, Horatio Robinson**, an American physician; born in Boston, Mass., Feb. 27, 1830; was graduated at Harvard University in 1850, and at its Medical Department in 1853. Later, he was Professor of Obstetrics and Medical Jurisprudence at Harvard till 1865; held the chair of obstetrics and medical jurisprudence at the Berkshire Medical College in 1865-1869; and invented several surgical and gynecological instruments.

**Stork**, in ornithology, any individual of the genus *Ciconia*. In form the storks resemble the herons, but are more robust, and have larger bills,



shorter toes, with a non-serrated claw on the middle toe. They inhabit the vicinity of marshes and rivers, where they find an abundant supply of food, consisting of frogs, lizards, fishes, and even young birds. Storks are migratory, arriving from the S. at their breeding haunts in the early spring, and departing again in the autumn.



WHITE STORK.

**Storm**, a violent commotion or disturbance of the atmosphere, producing or attended by wind, rain, snow, hail, or thunder and lightning; a tempest; often applied to a heavy fall of rain, snow, etc., without a high wind.

**Storm Glass**, a tube containing a liquid holding a solution which is sensible to atmospheric changes. In clear weather the substance is seen to settle near the bottom of the tube, the liquid remaining comparatively clear; previous to a storm the substance rises, causing the liquid to present a turbid and flocculent appearance.

**Storm-signal**, a cone and drum used to indicate the approach of a storm. The cone exhibited alone with its apex down portends a south gale; with its apex up, a north gale. The cone with the apex down and the drum

over it portends dangerous winds from the south; with the apex up and the drum under, dangerous winds from the north.

**Storrs, Emory Alexander**, an American lawyer; born in Hinsdale, N. Y., Aug. 12, 1835; removed to Chicago in 1859. He became prominent as a criminal lawyer, and for several years figured as counsel in almost every important criminal case in the Chicago courts. He became well known as a presidential campaign orator, and was a delegate-at-large to the National Republican Conventions of 1868, 1872, and 1880, where he was influential in shaping the platform of the party. He died in Ottawa, Ill., Sept. 12, 1885.

**Storrs, Richard Salter**, an American clergyman; born in Braintree, Mass., Aug. 21, 1821; graduated at Amherst College in 1839 and at the Andover Theological Seminary in 1845. In 1846 he was called to the Church of the Pilgrims in Brooklyn, N. Y., where he was pastor emeritus at the time of his death. He was one of the founders of the "Independent" in 1848 and remained on its editorial staff till 1861. He died in Brooklyn, N. Y., June 5, 1900.

**Story, Joseph**, an American jurist; born in Marblehead, Mass., Sept. 18, 1779. In 1811 he was appointed an associate justice of the United States Supreme Court, and held the office till his death. He died in Cambridge, Mass., Sept. 10, 1845.

**Story, William Edward**, an American educator; born in Boston, Mass., April 29, 1850; was graduated at Harvard College in 1871; studied physics and mathematics in Europe in 1871-1875, was assistant professor and Professor of Mathematics at Johns Hopkins University in 1876-1889; and in the latter year he accepted the chair of mathematics at Clark University. He became identified with several mathematical and other learned societies. His publications include contributions to technical periodicals.

**Story, William Wetmore**, an American sculptor, son of Judge Joseph; born in Salem, Mass., Feb. 19, 1819; was graduated at Harvard in 1838; was admitted to the bar and practised five years; went to Rome to study art and made Italy his home.



Among his sculptures are: a statue of Edward Everett (in the Boston Public Garden); and one of Prescott at Bunker Hill; "Cleopatra"; "Semiramis"; "Judith"; "Jerusalem"; "Medea"; "The Sibyl"; etc.; and busts of Judge Story, Lowell, Bryant, etc. He published: "Treatise on the Law of Sales of Personal Property," "Life and Letters of Joseph Story," "Poems," "The American Question," etc. He died in Vallombrosa, near Florence, Italy, Oct. 7, 1895.

**Stow, Baron**, an American clergyman; born in Croydon, N. H., June 16, 1801; was graduated at Columbia College in 1825. He was one of the most eloquent and prominent preachers in the Baptist Church. His work as a member of the Executive Committee of the American Missionary Union greatly strengthened that movement. Died in Boston, Mass., Dec. 27, 1869.

**Stowe, Calvin Ellis**, an American educator; born in Natick, Mass., April 6, 1802; was graduated at Bowdoin College in 1824, at Andover Seminary in 1828; and edited the Boston "Recorder" in 1829-1830. He was Professor of Greek at Dartmouth College in 1830-1832, and of Sacred Literature in Lane Theological Seminary, Cincinnati, O., in 1833-1835. He married Harriet Elizabeth Beecher in January, 1836, and went to Europe to examine the public school systems. He was professor at Bowdoin in 1850; and at Andover in 1852-1864. His publications include "Lectures on the Poetry of the Hebrews," "Report on Elementary Education in Europe," etc. He died in Hartford, Conn., Aug. 22, 1886.

**Stowe, Harriet Elizabeth Beecher**, an American novelist, daughter of Lyman Beecher and sister of Henry Ward Beecher; born in Litchfield, Conn., June 14, 1811; was educated at Litchfield Academy and at the school of her sister Catherine in Hartford; at the age of 14 she began teaching; in 1832 removed to Cincinnati, O. In 1836 she was married to Prof. Calvin Ellis Stowe; in 1850 she removed to Brunswick, Me., and later to Andover, Mass.; in 1864 she settled in Hartford, Conn., where she spent the remainder of her life. She published: "The Mayflower; or Sketches of Scenes and Characters

among the Descendants of the Pilgrims," "Uncle Tom's Cabin; or, Life among the Lowly," and a large number of other works. Her best-known work, "Uncle Tom's Cabin" (suggested by the life of Josiah Henson) has been translated into many languages, its sale exceeding that of any previous work of English fiction. She died in Hartford, Conn., July 1, 1896.

**Stowell, Charles Henry**, an American author; born in Perry, N. Y., Oct. 27, 1850; was graduated at the Medical Department of the University of Michigan in 1872; held the chair of physiology at the University of Michigan in 1876-1885; followed his profession in Washington, D. C., in 1885-1897; afterward applied himself to technical literature. His publications include "Primer of Health"; "Microscopical Diagnosis"; "Structure of Teeth"; etc. He also became editor of several monthly journals, including "Practical Medicine"; "Food"; "The Microscope"; "Trained Motherhood"; and the "National Medical Review."

**Stowell, William Scott, Lord**, an English jurist, eldest brother of Lord Eldon; born in Heworth, Durham, England, Oct. 17, 1745. As a barrister at Doctors' Commons he obtained a large practice, and his promotion was rapid. In 1788 he was appointed judge in the Consistory Court, knighted, and nominated a privy councillor. In 1798 he became judge of the Court of Admiralty. Both as an ecclesiastical and admiralty judge he won high distinction. He wrote no systematic treatise or textbook, but his judgments were admirably reported; and he was long the highest English authority on the law of nations. He represented Oxford in the House of Commons for 20 years; but took no part in the business of Parliament. At the coronation of George IV. he was raised to the peerage under the title of Baron Stowell of Stowell Park. In 1828 he retired from the bench. He died Jan. 28, 1836.

**Strabismus**, squinting arising from the optic axes of the eyes in certain individuals not being as in normal cases, parallel. Strabismus may affect one or both eyes, and may be upward, downward, inward, outward, or in the intermediate directions.

**Strabo**, a noted geographer; born in Amasea, Pontus, about 63 B. C. He seems to have been possessed of ample means which he expended on travel, the results of which, after a lifetime's toil, he has bequeathed to us in his "Geography." But he also devoted himself to philosophy, and is cited by Plutarch (Lucullus 28, Sulla 26) as Strabo, the philosopher. His work entitled "Historica Hypomnemata" in 43 books is supposed to have contained a narrative of the events from the close of the "History" of Polybius to the battle of Actium. His geography in seventeen books has been preserved entire with the exception of the seventh book, of which there is only an epitome. The first two books are introductory, the next ten treat of Europe, the four following of Asia, and the last of Africa.

**Stradivari, Antonio (Stradivarius)**, an Italian violin maker; born in Cremona, Italy, about 1649. He was a pupil of Nicolo Amati, in whose employment he remained till 1700, when he began making on his own account. It was he who settled the typical pattern of the Cremona violin, and his instruments, for tone and finish, have never yet been excelled. He died in Cremona Dec. 17, 1737.

**Strafford, Thomas Wentworth, Earl of**, an English statesman, the eldest son of Sir William Wentworth; born in London, April 13, 1593. He sat in Parliament for Yorkshire for a number of years, and when Charles I. asserted that the Commons enjoyed no rights but by royal permission, he was strongly opposed by Sir Thomas Wentworth. In 1628 he was successively created Baron Wentworth, privy-councillor, and President of the North. Archbishop Laud selected him to proceed to Ireland as lord deputy in 1632. Here he greatly improved the state of the country, both as regarded law, revenue, and trade. For these services he was created Earl of Strafford. When the Long Parliament met, the very first movement of the party opposed to arbitrary power was to impeach Strafford of high treason. His defense, however, was so strong that the original impeachment was deserted for a bill of attainder. The bill passed the Com-

mons by a great majority, and was feebly supported by the House of Lords. The king endeavored to secure his safety, but yielded to the advice of his counsellors, backed by a letter from Strafford himself, who urged him, for his own safety, to ratify the bill. Strafford was accordingly beheaded on Tower Hill May 12, 1641.

**Straight-out Democrats**, a political party which arose in the United States in 1872, their distinguishing tenet being that governments should be limited to police functions.

**Strangles**, a disease attacking horses, generally between the ages of three and five years. It consists of an abscess, which occurs between the branches of the lower jaw. It is considered contagious. The name is also applied to a similar infectious disease in swine.

**Strangling Bug**, a large water bug, which made its appearance in New Jersey and other places in the summer of 1898. It was given the name of "strangling bug" from its tendency to fasten its hooked claws into the neck of its victim.

**Strangulation**, an act of violence in which constriction is applied directly to the neck, either around it or in the forepart, in such a way as to destroy life. This definition obviously includes hanging, which differs from other forms of strangulation only in that the body is suspended. The direct cause of death in the great majority of cases is arrest of the respiration owing to pressure on the windpipe—i. e., asphyxia. If much violence is used, death may be produced by direct injury to the upper part of the spinal cord from fracture or dislocation of the cervical vertebrae (as is now the rule in execution by hanging), or by syncope from shock, and in such cases must be almost instantaneous; on the other hand, if constriction is so applied as to compress the great vessels in the neck and not the windpipe, as may happen in "garotting," it is due to coma, and is somewhat slower than in cases of asphyxia. Or if both vessels and windpipe are compressed, coma and asphyxia may both contribute to cause death.

**Strassburg**, a town and fortress of France, in Alsace; capital of the ter-

ritory of Alsace-Lorraine; on the Ill; about 2 miles W. of the Rhine, to which its glacis extends; 250 miles E. by S. of Paris, and about 370 miles S. W. of Berlin. By means of canals which unite the Ill with the Rhine, Rhone, and Marne, it is brought into communication with the Atlantic and the Mediterranean. It has always been regarded as a place of strategical importance, and strong fortifications and a pentagonal citadel were erected by Vauban in 1682-1684. The chief building is the cathedral, a structure which presents the architectural styles of the centuries from the 11th to the 15th, in which it was built, but whose main element is Gothic. It is surmounted by towers 466 feet high, has a splendid W. facade, with statues and great rose window, fine painted glass windows, and a famous astronomical clock, made in 1547-1580. The other notable buildings are the Church of St. Thomas, the Temple-Neuf or Neukirche, the old Episcopal palace, the town hall, the new university building, opened in 1884, and the new imperial palace. United to France in 1681, Strassburg was ceded with the territories of Alsace and Lorraine to Germany in 1871. Again re-united to France, 1918. Pop. (1921) 166,767.

**Strategy, Board of,** a board of United States naval officers organized at the commencement of the Spanish-American War in 1898; consisted of Rear-Admiral Montgomery Sicard, Capt. A. T. Mahan, A. S. Crowninshield, and A. S. Barker, and had charge of conduct of the war at sea.

**Stratford,** city, port of entry, and capital of Perth county, Ontario, Canada; on the Avon river and the Grand Trunk railroad; 88 miles W. of Toronto; is in a grain, flax, and livestock section; has extensive locomotive and car shops, and manufactories of milling machinery, iron bridge work, wire fencing, flax cordage, brick and tile, farm implements, and woolen goods. Pop. (Est. 1930) 19,000.

**Stratford-on-Avon,** a town of Warwickshire, England; 8 miles S. W. of Warwick; on the right bank of the Avon river, famous as the home of Shakespeare. "Shakespeare's House," that is, the house in which he was born, having been purchased by subscription and dedicated to the public

in 1847, was restored in 1859, and now contains the Shakespeare library and museum, the Stratford portrait, etc. The grounds are now open free. In the cruciform parish church are his grave and portrait bust, also the font in which he was baptized. The old parish register with the entry of Shakespeare's baptism and burial, is shown near the N. door of the church. The central tower of the church dates from the 13th century. Other monuments are the Shakespeare Memorial Theater, built in 1879 at a cost of over \$200,000, intended for occasional Shakespearean celebrations, and possibly as a dramatic college, and having attached to it, a Shakespeare library and museum; the Shakespeare fountain, built by an American, and the Shakespeare monument. Apart from Shakespeare, the town is interesting as containing the early home of the mother of John Harvard, founder of America's oldest university. The town owes its name to the old ford of the Avon parallel to the bridge on the road from London to the N. W.

**Stratheona and Mount Royal, Donald Alexander Smith, 1st Baron,** a Canadian statesman and philanthropist; born in Scotland in 1820; entered the service of the Hudson Bay Company in early youth; was a special commissioner on several important Canadian affairs; member of the Commons repeatedly; actively interested in large railroad and other corporations; High Commissioner for Canada from 1896; and donor of several millions of dollars to Canadian and other British institutions. He died Jan. 21, 1914.

**Stratum,** a bed or mass of matter spread out over a certain surface, in most cases by the action of water, but sometimes also by that of wind. Most strata have a dip and a strike. The fossils will in most cases show whether strata are lacustrine, fluvial, or marine. They prove that deposit was very slow. One stratum may overlap another, or a stratum may thin out, or an outcrop of it may exist. As a rule, the lowest are the oldest, but some great convulsion may have tilted over strata in limited areas, so that the oldest have been thrown uppermost. The thickness of the stratified rocks is believed to be 20 miles.

**Straus, Oscar Solomon**, an American diplomatist; born in Ottenberg, Bavaria, Dec. 23, 1850; came to the United States in 1854; appointed Minister to Turkey in 1887 and 1898, and Ambassador in 1909; member of Permanent Court of Arbitration from 1902; Secretary of Commerce and Labor in 1906-1909; author of "Roger Williams, the Pioneer of Religious Liberty," "The Development of Religious Liberty in the United States."

**Strauss, Johann**, an Austrian musician; born in Vienna, Oct. 25, 1825; began the composition of waltzes at the age of six. An operetta, "Indigo" produced in 1871, met with instantaneous success. Subsequently he produced "The Forty Thieves," "Cagliostro," "The Gypsy Baron," etc., and numerous waltzes, the best known being "The Beautiful Blue Danube." He died in Vienna, June 3, 1899. His brothers JOSEPH and EDUARD, were also celebrated musicians.

**Strauss, Joseph**, a naval officer; born in Mount Morris, N. Y., Nov. 16, 1861; was graduated at the United States Naval Academy in 1881. He invented, with Admiral Sampson, the superposed turret system of mounting guns on battleships in 1895; cruised in South American waters in 1896-1900; and engaged in the blockade of the Cuban coast in 1898. From 1900-3, he was in charge of the United States Naval Proving Ground; Chief of the Bureau of Ordnance, with the rank of rear-admiral, from 1913.

**Strauss, Richard**, a German composer; born at Munich in 1864; recognized as the most advanced exponent of the Wagnerian School.

**Straw**. Apart from the importance of the straw of various cereal plants as a feeding and bedding material in agriculture, such substances also possess no inconsiderable value for packing merchandise, for thatching, for making mattresses, and for door mats. Straw is also a paper-making material of some importance, and split, flattened, and colored, it is employed for making a mosaic-like veneer on fancy boxes. But it is in the form of plait that straw finds its most outstanding industrial application, these being used to an enormous extent for making hats and bonnets and for small baskets, etc.

**Straw Ball**, worthless security furnished by an offender against the law for his appearance for trial, the bonds given being fraudulent statements of property owned by the person offering it.

**Strawberry**, a well-known fruit and plant. It is remarkable for the manner in which the receptacle, commonly called the fruit, increases and becomes succulent; but the true fruit is the small seeds or achenes on the surface of the receptacle. The species are perennial plants throwing out runners which take root and produce new plants; they are natives of temperate and cold climates in America, Europe, and Asia.

**Street, Alfred Billings**, an American author; born in Poughkeepsie, N. Y., Dec. 17, 1811. In 1839 he removed to Albany, N. Y., where he practised law for a number of years. Among his best known poems are "The Burning of Schenectady"; "Drawings and Tintings"; "Fugitive Poems"; etc. He died in Poughkeepsie, N. Y., June 2, 1881.

**Street Railways**, iron ways laid along a road, or the streets of a town or city, on which cars for passengers are drawn by horses, steam, electricity, or other mechanical means. The first use of cable cars was in San Francisco, Cincinnati, and other Western cities, where the steep grade of certain streets rendered horse cars impracticable. Later they were generally adopted throughout the United States as a substitute for horse cars. Electricity was employed in storage batteries and by means of overhead trolleys, but the most satisfactory form is that of the underground electric conductor. In 1928 there were 44,265 miles of single track in the United States. In 1922 it was estimated that the value of the street railways was \$4,887,636,000, an increase of 8.7 per cent over the value in 1912.

**Stress**, a convenient term introduced by Professor Rankine to express the mutual action between any two portions of matter. Thus the pressure between a table and a book resting on it is of the nature of a stress, which has two aspects, according as we fix our attention on the table or the book. With reference to the former the pressure is downward, with reference to

## Stricture

the latter upward, and these two forces, which according to Newton's third law are equal and opposite, form when regarded as a whole the stress.

**Stricture**, a term employed in surgery to denote an unnatural contraction, either congenital or acquired, of a mucous canal, such as the urethra, oesophagus, or intestine. When, however, the affected part is not mentioned, and a person is stated to suffer from stricture, it is always the urethral canal that is referred to. Contraction of this canal may be either permanent or transitory, the former is due to a thickening of the walls of the urethra in consequence of organic deposits and is hence termed organic stricture; while the latter may be due either to local inflammation or congestion, or to abnormal muscular action; the first of these varieties may be termed inflammatory or congestive stricture, and the second spasmodic stricture. The last named form seldom exists except as a complication of the other kinds of stricture.

**Strikes**, a term applied to concerted movements on the part of workmen to quit work unless their employers agree to some demand made by the men. The earliest strike of which there is a record in the United States occurred in Philadelphia in 1796, when 300 shoemakers struck for higher wages. The struggle was successful. In 1848 occurred a great strike of weavers at Fall River, and in 1877 occurred the first railroad strike. From 1888 to 1891 there were a great number of important strikes, including the street car strike of New York city. In 1892 there were six great strikes, including the one at Homestead, Pa., during which 10 men were killed, the militia was called out, and such destitution prevailed that the government ordered an investigation. In 1892 there were two great railroad strikes. Perhaps the most notable strike in the history of the United States occurred in 1894 among the railroad employes of the roads centering at Chicago. Fully 100,000 men were affected. The strike originated among the 3,000 employes of the Pullman Car Company, who demanded higher wages. Just as their strike was about to fail, the cause of the strikers was espoused by the Amer-

## Strong

ican Railway Union, an organization numbering over 100,000 railroad men. These men refused to handle Pullman cars, an immense amount of rioting followed, and the President was obliged to call on the Federal troops to restore order, after first issuing two proclamations to the strikers. During 1917 serious and widespread strikes occurred in many of the Western and Pacific States, especially where war preparations were being rushed, and a large number of the Industrial Workers of the World were arrested for causing them.

**Stringham, Silas Horton**, an American naval officer; born in Middletown, N. Y., Nov. 7, 1798; joined the navy in 1809; and served on the frigate "President." Promoted captain in 1841 he served on the "Ohio" during the bombardment of Vera Cruz in 1847. At the outbreak of the Civil War he was ordered to Washington to advise concerning war preparations. He strongly advocated the relief of Fort Sumter, but before his advice was followed the place was reduced. He was later given the command of the North Atlantic Blockading Squadron, which bombarded and received the surrender of the forts at Hatteras Inlet. This was the first important naval victory of the war. In December, 1861, Stringham was promoted commodore and retired from active service owing to age; and in July, 1862, was promoted rear-admiral on the retired list. He died in Brooklyn, N. Y., Feb. 7, 1876.

**Strobel, Edward Henry**, an American educator; born in Charleston, S. C., Dec. 7, 1855. He was secretary of the United States legation in Madrid, Spain, in 1885-90; a special United States agent to Morocco in 1888-89; U. S. minister to Chile in 1894-97. He was counsel for the latter country before the U. S. and Chilean Claims Commission in 1899; and member of The Hague Arbitration Court from 1903. He died Jan. 15, 1908.

**Strong, Augustus Hopkins**, an American educator; born in Rochester, N. Y., Aug. 3, 1836. In 1872 he became President and Professor of Systematic Theology in the Rochester Theological Seminary. He was the author of "Systematic Theology."



**Strong, James**, an American educator; born in New York city Aug. 14, 1822; was Professor of Biblical Literature at Troy University in 1858-1861; and became Professor of Exegetical Theology at Drew Theological Seminary in 1868. The principal work of his life was the "Cyclopædia of Biblical, Theological, and Ecclesiastical Literature" (10 vols. 1867-1881; 2 supplement vols. 1885-1887). Died in Round Lake, N. Y., Aug. 7, 1894.

**Strong, Josiah**, an American clergyman; born in Naperville, Ill., Jan. 19, 1847; settled with his parents in Hudson, O., in 1852. He was secretary of the Evangelical Alliance for the United States from 1886 to 1898; president of the League for Social Service, 1898-1902; is president of the American and Foreign Christian Union, has written books of great value for the religious betterment of humanity, and is one of America's leading divines. Died, 1916.

**Strong, Latham Cornell**, an American author; born in Troy, N. Y., June 12, 1845. He was editorially connected with the Troy "Whig." His published volumes include: "Castle Windows"; "Pots of Gold." He died in Tarrytown, N. Y., Dec. 17, 1879.

**Strong, Nathan**, an American Congregational clergyman; born in Coventry, Conn., Oct. 16, 1748. He was a chaplain in the Revolutionary army; projected and sustained the "Connecticut Evangelical Magazine," founded and conducted the Connecticut Missionary Society and compiled the "Hartford Collection of Hymns." He died in Hartford, Conn., Dec. 25, 1816.

**Strong, Theodore**, an American mathematician; born in South Hadley, Mass., July 26, 1790. He was professor of Natural Philosophy and Mathematics at Hamilton College in 1816-1827; and held a similar chair at Rutgers College in 1827-1861. In the realm of pure mathematics he was conceded to have no superior. After the ablest mathematicians of Europe had failed to solve the irreducible case of cubic equations left by Cardan, he discovered its solution by a direct method. He was also the discoverer of the method of extracting any root of any integral number by a direct process. He died in New Brunswick, N. J., Feb. 1, 1869.

**Strother, David Hunter**, pseudonym Porte Crayon; an American author; born in Martinsburg, Va., Sept. 16, 1816. His series of sketches contributed to "Harper's Magazine," were great popular favorites; they were republished in book form under the titles "The Blackwater Chronicle," and "Virginia Illustrated." He died in Charleston, W. Va., March 8, 1888.

**Stry, or Stryj**, a town of Austria-Hungary, in Galicia, 40 miles S. of Lemberg, on the Stry river: is strongly fortified, and has rapidly increased in population in the last 25 years. The region is mountainous and woody, and produces large quantities of flax, and the town has considerable manufactures. Pop. (1925) 38,102.

**Strychnine**, a highly poisonous alkaloid, discovered in 1818 by Pelletier and Caventou in *St. Ignatius' beans*, and in *Nux vomica* seeds. Strychnine was scarcely heard of as a means of poisoning before the year 1855, the date of the Rugeley murders in England, for which Palmer was tried at the Old Bailey in 1856, and executed. The symptoms are very marked, and comprise violent tetanic convulsions, laborious respiration, from the tightening of the chest muscles, spasmodic contraction of the heart, and rigidity of the spinal column. These are succeeded by a short calm, after which they are again repeated till death or progress toward recovery ensues, the time being about two hours after taking the poison.

**Stryker, Melancthon Woolsey**, an American educator; born in Vernon, N. Y., Jan. 7, 1851. In 1892 he became president of Hamilton College. He was the author of numerous hymns and poems including, "Song of Miriam"; "Lattermath"; "Letter of James"; etc.

**Stryker, William Scudder**, an American historian; born in Trenton, N. J., June 6, 1838. During the Civil War he served on General Gillmore's staff and distinguished himself at the capture of Morris Island and in the assault on Fort Wagner. From 1867 till his death he was adjutant-general of New Jersey, and in 1874 was brevetted Major-General. He published "Official Register of the Officers and Men of New Jersey in the Revolutionary War"; "The New Jer-

sey Volunteers"; etc. He died in Trenton, N. J., Oct. 29, 1900.

**Stuart Family, The.** This house derives its name from the important office of steward of the royal household of Scotland. The founder of the house seems to have been a Norman baron named Alan, whose second son Walter entered the service of David I. of Scotland, and became dapifer or steward of the royal household. Walter, the sixth steward, married Marjory, daughter of King Robert I., a union which secured to his family the crown of Scotland in the event of the extinction of the royal line. He died in 1326, and was succeeded by his son, Robert, the seventh steward, who, on the death of David II. without issue, succeeded to the crown as Robert II. in 1371.

Succeeding monarchs of this house, with dates of their accession, were, Robert III. (1390); James I. (1424); James II. (1437); James III. (1460); James IV. (1488); James V. (1513); Mary Stuart (1542); James VI. of Scotland (1568); and of England, James I. (1603); Charles I. (1625); Charles II. (1649); and James II. of England (1685). The last male representative of the branch of the Stuart line descended from Henrietta Maria, daughter of Charles I., was Francis V., ex-Duke of Modena, who died childless Nov. 20, 1875.

**Stuart, Charles Edward Lewis Casimir**, known as "The Young Pretender," eldest son of James Francis Edward, known as "The Old Pretender," and who was the son of James II. of England and VII. of Scotland, driven out by the people on account of his tyranny and his efforts to establish the Roman Catholic faith. "The Young Pretender" was born at Rome, 1720, and died at Rome in 1788. In 1745 he landed in Scotland, and the highlanders and many lowlanders gathered to his standard. He defeated the English at Preston Pans and Falkirk, but his army was utterly crushed at Culloden. His followers were executed wherever captured, and he wandered about with a reward of \$150,000 offered for his head, but was shielded by loyal peasants. He escaped to the continent, where he passed an aimless and dissolute life until his death.

**Stuart, Gilbert Charles**, an American painter; born in Narragansett, R. I., Dec. 3, 1755. In 1775 he went to London, where he became a fashionable portrait painter. In 1792 he returned to the United States, and painted portraits of Washington, Jefferson, Madison, John Adams, and many of the distinguished men of the period. Died in Boston, July 27, 1828.

**Stuart, James Elwell Brown**, an American military officer; born in Patrick Co., Va., in 1832; was graduated at the United States Military Academy in 1854; and became captain in 1860. In 1861 he resigned his commission in the United States army and entered the Confederate service. He was in charge of the Confederate cavalry at the first battle of Bull Run. He was promoted Major-General and commanded troops at Chancellorsville and at Gettysburg. In 1864 he opposed Sheridan's cavalry, but was mortally wounded in a fight at the Yellow Tavern. He died in Richmond, Va., May 11, 1864.

**Stuart**, properly **Leonard-Stuart, Charles**, cyclopædist and translator; born in 1868. He was educated in France and in England, and after leaving college, spent several years in study, travel, and residence, in Europe and northern Africa, contributing articles, stories, poems, and translations, to various European periodicals. He came to the United States in 1897, and became associated with the "New International," "Americana," "Britannica," "Globe," "Review of Reviews," "United Editors," and other encyclopedias, the "International Year Book," "Pictorial Gazetteer of the World," "New Knowledge," etc. In 1906, he joined the Editor's Cabinet of "Success Magazine," and became editor of the "Century Reference Library."

**Stuart, Ruth McEnery**, an American author; born in Avoyelles parish, La., in 1856. Her published writings include: "A Golden Wedding, and Other Tales"; "Sonny." Died, 1917.

**Stuckenberg, John Henry Wilburn**, an American clergyman; born in Bramsche, Germany, Jan. 6, 1835. During the Civil War he was present, as chaplain of the 145th Pennsylvania Volunteers, at the battles of Fredericksburg, Chancellorsville, and Gettysburg. He was professor in the

Theological Department of Wittenberg College in 1873-1880, and pastor of the American Church in Berlin, Germany, in 1881-1894. His publications include, "Christian Sociology"; "The Final Science," etc. Died 1903.

**Stundists**, a body of Russian Christians who have renounced the Greek Church. The name comes from the German word, "stunde" (an hour), referring to their observance of the hour of prayer. They are of two kinds. One of them believes in Transubstantiation; the other, and larger division, hold doctrines practically identical with those of American Baptists. They refuse to bear arms, and on that account, have been savagely persecuted by the Russian Government.

**Sturgeon**, a genus of ganoid fishes, the skin being either naked or with hard, bony plates, as in the sturgeon. They live in the sea and great lakes, and ascend the great rivers. All are of considerable size, and supply valuable commodities, for which they are regularly captured on a large scale. These commodities are their flesh, which is palatable and wholesome, their roe and their air bladders, from which isinglass is made.

**Stuttgart**, capital of People's State of Wurtemberg, Southern Germany, beautifully situated near the left bank of the Neckar, and closely surrounded by vineyard slopes, 816 feet above the sea. With the exception of part of the lower and older town, it consists of spacious streets and squares lined with fine buildings. There are several high-class educational establishments, the Polytechnic being the chief. Stuttgart is the chief center in South Germany for the book trade, connected with which are paper mills, type foundries, printing presses, and lithographic establishments. The other leading manufactures include dyes, chemicals, woolen and cotton goods, various fancy articles, jewelry, musical instruments, mathematical and scientific instruments, liquors, confectionery, and beer. E. from Stuttgart, and almost connected with it by the royal palace grounds, is the town of Cannstatt. Pop. (1919) 309,197.

**Stuyvesant, Peter**, a Dutch military governor; born in Holland in 1602; served in the West Indies, was

director of the Dutch colony of Curacao, and lost a leg in an attack on the Spanish island of St. Martin. In 1647 he was made director-general of the New Netherlands, and reached New Amsterdam (now New York), in May of that year. Under his direction boundary lines were established between the Dutch and English possessions in America; but the British encroachments persisted till in August, 1664, an English fleet appeared in the bay and compelled the surrender of New Amsterdam, after which its name was changed to New York. Stuyvesant went to Holland in 1665, but afterward returned and spent the remainder of his life on his farm called the Bouwerij, from which the name Bowery was given to a well-known thoroughfare in New York city. He died in August, 1682.

**Style**, a piece of iron or other material pointed at one end, used by the ancients for writing by scratching on wax tablets. The other end was made blunt and smooth, and was used to make erasures. Hence, a hard point for tracing, in manifold writing. A pointed tool used in graving. Also, the manner of writing with regard to language; the peculiar manner in which a person expresses his ideas or conceptions; the particular mode or form of expressing ideas in language which distinguishes one writer or speaker from another; the distinctive manner of writing characteristic of each author, or of each body of authors, allied as belonging to the same school, country, or epoch.

Also mode of presentation, especially in music or any of the fine arts; characteristic or peculiar mode of developing an idea or accomplishing a result; the peculiar manner in which an artist expresses his ideas; it is exhibited in his choice of forms and mode of treating them, and is determined in different ways, according to the changes of thought at different times and stages of its development. Besides the individual style, there is also a national style; as the Egyptian, the Grecian styles of architecture. Each of the various branches of art has its peculiar style; as, the epic, lyric, and dramatic styles of poetry; the historical and the landscape styles of painting, etc. In architecture, a particular character as

to the general artistic idea prevailing in a building; as, the Gothic or Norman styles.

**Styz**, in mythology, one of the rivers of Hades—the 10th part of the waters of Oceanus—flowing round it seven times with dark and sluggish stream, across which Charon ferries the shades of the departed.

**Sub-deacon**, the lowest step in holy orders in the Roman Catholic Church, the highest of the minor orders among the Greeks. In the Roman Catholic Church sub-deacons prepare the sacred vessels and the bread and wine for mass, pour the water into the chalice at the offertory, and sing the Epistle; in the Greek Church they prepare the sacred vessels, and guard the gates of the sanctuary. There are no sub-deacons in the Anglican Communion.

**Submarine**, a distinctive term applied to a vessel capable of being submerged and maintained at a given depth below the surface of the water, and provided with means for penetrating the hull of an enemy's ship below the water line, or of blowing her up—usually a torpedo, which may be fired from the submarine. It is believed that the first boat of this character was constructed by Drebbel, a Dutchman, for James I. In 1801 Robert Fulton made an effort in this direction; but the first American submarine that stood a practical test and was the prototype of the modern "U-boat," was the "Holland," named after its designer and builder, and tested in the lower bay of New York harbor before the U. S. Naval Board of Inspectors and Survey on Nov. 12, 1898. A torpedo was discharged under water, and the vessel went through a programme of diving and running at full speed, and reversing while submerged. In 1901 the "Fulton," a vessel of similar construction, was officially tested, and its crew remained submerged for 15 hours without suffering any inconvenience.

Early in the World War the German "U-boat" became the terror of the seas, and after the inhuman sinking of the "Lusitania," with the loss of nearly 1,200 lives, on May 7, 1915, the German submarines sank thousands of neutral vessels to prevent

foodstuffs and munitions from reaching the Allies, without regard to the great loss of human lives. Against the terrible menace of the submarine, the Allies sent out opposing submarines and destroyers and provided their merchantmen with naval guns and gunners for protection, with the result that by September, 1917, Germany's awful toll of the sea had been reduced to a low percentage of ocean bottoms.

An evidence of the wonderful development and efficiency of the submarine and the possibility of a direct submarine menace to the United States was strikingly shown in three events in 1916:

On July 9, the German submarine "Deutschland," bearing a valuable commercial cargo, suddenly appeared at Norfolk, Va.; on Aug. 1, the craft secretly left Baltimore on her return voyage, escaping British warships on the lookout beyond the three-mile limit; and on Aug. 23, she reached her home port safely, making an unattended voyage of some 4,000 miles. On Oct. 8, the German "U-53" reached the Atlantic coast, and, after her officers and crew had been courteously received, suddenly departed, and when off Nantucket, Mass., sank a Dutch, a Norwegian, and four British merchantmen. On Nov. 1, the "Deutschland" made a second commercial trip to the United States, and after leaving was not publicly heard of again.

It was openly stated that the "Bremen," sister-craft of the "Deutschland," had started on a voyage to the United States, and later it was declared in London that both submarines had been captured by British warships and interned in a British port.

The terrible results of the Teutonic submarine warfare were set forth with much detail by the British Admiralty and made public in the United States by the British Embassy on March 21, 1918. From this report it appeared that from the outbreak of the war in 1914 to Jan. 1, 1918, the losses of allied and neutral shipping aggregated 11,827,572 gross tons. The maximum of losses was reached in the second quarter of 1917, after the "unrestricted" campaign was launched. In that period 2,236,934 gross tons were sunk. From that period until the last

quarter of 1917, the total was reduced to 1,272,843 gross tons, and in that quarter it was further reduced to 932,023 gross tons.

To offset these losses new construction was speeded up in the United Kingdom and in the United States after Congress declared war against the Imperial German Government (April 6, 1917). The total world's new construction aggregated 1,012,920 gross tons in the last quarter of 1914. By Jan. 1, 1918, it had increased to 3,606,275 gross tons. In addition to the new construction, the Entente Allies, including the United States, gained 2,589,000 gross tons of enemy shipping by capture, more than 1,000,000 gross tons representing the internments at the beginning of the war.

The British Admiralty's report also placed the total allied and neutral tonnage at 42,000,000 gross. Here should be noted the Anglo-American agreement of approximately the same date, under which 77 Dutch ships in American ports, aggregating about 600,000 tons, and Dutch ships in British waters, aggregating about 400,000 tons, were requisitioned and placed in the allied service.

After the United States had been forced into the war, the Congress gave prompt heed to the allied calls for shipping, made stupendous appropriations, authorized vast construction activities in various parts of the country, and created many supervising agencies to speed the work.

Under the spur of patriotic duty, American ingenuity gave birth to a number of devices for combatting the submarine menace, much of which was shrouded in secrecy for evident military reasons. In a California shipyard a specimen ocean-going commercial steamship was constructed of reinforced concrete. The old type of destroyers was superseded by craft of greater efficiency. A novel class, known as "submarine chasers" and, popularly, as "sea-flivvers," was developed. A depth-bomb was put into service, designed to be dropped vertically over the side of an opposing vessel, and made to explode at a set depth, time, and distance, calculated to occur when the bomb was beneath or relatively close to an enemy submarine.

And, among the latest anti-subma-

rine weapons, was an ingenious projectile called a "diving" or "non-ricochetting" shell, which in practical tests would disregard the water-surface and could be fired at a submarine beneath it with the certainty that it would proceed to its object under water as reliably as above it. This shell, instead of rebounding from the surface would "bite" the water on striking and continue its course below the surface. As a submarine's periscope is an exceedingly difficult object to hit, it was demonstrated that a "diving" shell dropped a little short of the periscope had a fair chance to strike the body of the submarine itself or cause its destruction by transmitting the exploding shock through the water.

**Submarine Cable**, a wire, or combination of wires, protected by flexible, non-conducting waterproof material, designed to rest on the bottom of a body of water, and serve as a conductor for the currents transmitted by an electro-magnetic telegraphic apparatus.

In all there are now about 200,000 miles of submarine cables, enough to go about eight times around the earth. They have cost about \$200,000,000, but their market value is considerably higher, as deep-sea cables are solid and profitable investments. Of the total mileage, the Eastern and its associated companies control practically half, or, to be precise, 99,262 nautical miles of cables, with 161 stations, and 11 cable steamers. There are about 1,700 submarine cables ranging from a quarter of a mile to 15,000 miles. Nearly all the short lines belong to governments, but though only about 420 cables belong to private companies, these include at present all the deep-sea cables and about 90 per cent. of the total length of cables in the world.

**Submarine Mines**, explosives placed under water in a harbor, or along the coast, to destroy the vessels of any enemy. Submarine mining originated with the Germans who used it with great effect during the Franco-Prussian War. The Spanish-American War demonstrated the inefficiency of torpedoes and torpedo boats against rapid-fire guns, but the submarine mines remained a constant source of



dread of the battleships. In 1904, the destruction of the Russian battleship "Petropavlosk," also of the Japanese ships "Hatsuse" and "Yoshino," by submarine mines, and the indiscriminate scattering of mines in the Gulf of Pe-chi-li were features of the war, and the same holds true, but in greater degree, of the World War.

**Substance**, in philosophy, that which is and abides as distinguished from accident, which has no existence of itself, and is essentially mutable. "The idea, then, to which we give the name of substance, being nothing but the supposed but unknown support of these qualities (accidents) we find existing, which we imagine cannot subsist without something to support them, we call that support substantia, which, according to the true import of the word is in plain English (something) standing under and upholding."

**Sub-Treasury System**, a system established by the United States under the Act of July 4, 1840, when for the first time, the National government assumed charge of its own funds, and sub-treasuries were established at New York, Boston, Charleston, St. Louis, Philadelphia, and New Orleans. A new sub-treasury act, substantially the same as the first, became law in August, 1846. The system then established is still in force. The government acts as its own bank, keeping its funds in the vaults of the treasury and of the various sub-treasuries; in addition, the government may deposit its funds with certain of the National banks designated as depositories, they giving security therefor in the shape of government bonds.

**Subways**, a term generally applied to arched passages or small tunnels under streets for the purpose of containing gas pipes, water pipes, and sometimes sewer pipes, or at least drains for surface water. Some also contain telegraph wires and pipes for the transmission of compressed air. They are made of sufficient size to permit of workmen walking to and fro in them to examine the pipes and to execute repairs, they save the necessity for breaking up streets to get at the pipes for repairs, an operation which not only obstructs the traffic,

but prevents the surface being kept in proper condition. The name subway is also applied to underground tunnels of city railways, such as those in New York, Chicago, Boston, Philadelphia, Hoboken, Jersey City, and other cities in the United States, and, notably, in London, England. In 1910 there were six railway tubes under the Hudson River and eight under the East River, at New York, and the already extensive system of mainland subways was undergoing a more than double-capacity enlargement during 1917.

**Succession**, law of succession. The law or rule according to which the succession to the property of deceased persons is regulated. In general this law obtains only in cases in which the deceased person has died intestate, or in which the power of bequeathing property by will is limited by the legislature. In the United States each State has its own law of succession. Usually succession is by families.

**Suchau**, previous to the Taiping rebellion, one of the largest cities in China; on the Imperial canal, 80 miles W. N. W. of Shanghai, in the province of Kiangsu. It stands on numerous islands separated by canals, and since 1896 has been accessible as a treaty port. The city walls have a circuit of 10 miles. Suchau has for generations been a noted center of the silk manufacture and of the printing of cheap Chinese classics. It was captured by the Taipings but recovered by "Chinese" Gordon in 1863, when the city with its many handsome buildings was almost wholly destroyed. Pop. (1924) Est. 550,000.

**Sucker**, or **Sucking Fish**, a name applied popularly to the Remora, to the lump-sucker, and also to the fishes belonging to the genus which is nearly allied to the lumpsuckers. The best-known forms are Montague's sucker, and the common sucker or seasnail, which adheres to stones and other fixed objects by means of their united ventral fins. They are small fishes, three or four inches long.

**Sucker State**, a popular name for Illinois, whose inhabitants are often called "suckers" by their fellow citizens of neighboring States.

**Suczawa**, a town of Austria, Province of Bukowina, on the Suczawa river, 50 miles south of Czernowitz. The river here forms the boundary between Bukowina and Rumania. The town was once the residence of the Moldavian princes; was many times besieged by Poles, Hungarians, Tartars and Turks; and was plundered by the latter in 1679. Its principal industry is the tanning of leather. Pop. about 12,000.

**Sudan**, the Arab name given to the vast extent of country in Central Africa which lies between the Sahara on the N., Abyssinia and the Red Sea on the E., the countries draining to the Kongo basin on the S., and Senegambia on the W. Its area is estimated at 2,000,000 square miles. The inhabitants comprise numerous nations of different races, chiefly the Negro, together with Arab colonists and traders. Western and Central Sudan are divided into a number of independent and semi-independent States: Bambarra, Gando, Sokoto, Adamawa, Bornu, Baghirmi, Wadai, and Kanem. These States have been absorbed into provinces formed by the European powers. French Sudan extends from Algeria and Tunis on the N. to Nigeria (British territory) on the S. and from the West coast "linterlands" (French territory), to a line running from the extreme S. point of Tripoli to Lake Tchad. The boundary lines were fixed by the Anglo-French agreement of 1899. In the same year the administration of French Sudan was changed, the regions in the W. and S. W. being put under the control of the Governor-General of West Africa, while the regions in the N. and N. E. were made into two military departments. Pop. (Est.) 8,000,000.

The Egyptian or Eastern Sudan comprises Dongola, Khartum, Suakin, Senaar, Kordofan, Darfur, and the Equatorial Province, with Fazogli and Bahr-el Ghazal. The estimated area is about 950,000 square miles. Egyptian rule was first extended to the Eastern Sudan in the early part of the 19th century by Mohammed Ali, under whom Ibrahim Pasha carried it as far S. as Kordofan and Senaar. An Egyptian expedition under Sir Samuel Baker in 1870 led to

the conquest of the equatorial regions on the Nile farther S. than the Sudan proper, of which General Gordon was appointed Governor-General in 1874. On the fall of Ismail Pasha of Egypt, Gordon was recalled, and hordes of Turks, Circassians, and Bashi-Bazouks were let loose to plunder the Sudanese. Egyptian misrule then became intolerable, and in this crisis appeared Mohammed Ahmed of Dongola, who gave himself out to be the Mahdi, the long-expected redeemer of Islam.

The revolt of the Mahdi broke up the Egyptian Sudan into various districts. After the Mahdi's death the insurrection was continued by one of his lieutenants called the Kalifa. In 1897 the Anglo-Egyptian army commenced operations for the recovery of the lost provinces. In 1898 the territory was practically regained, and the last resistance disappeared when Osman Digna was captured Jan. 19, 1900. By the convention of Jan. 19, 1899, the Egyptian Sudan is administered by a governor-general appointed by Egypt with the assent of Great Britain. The receipts to be collected in the Sudan were estimated at \$790,000, and the expenditures at \$2,875,000, the balance to be made up by Egypt. In 1898, there were strained relations between the Egyptian and the French governments, owing to the presence in the Egyptian Sudan of a French force under Major Marchand. The difficulty was settled by Marchand's evacuation of Fashoda. Khartum is the capital of the Egyptian Sudan. Area, about 1,014,400 square miles; pop. (1923) Est. 5,912,400.

**Sudermann, Herman**, German author and editor, born at Matzkiken, Prussia, Sept. 30, 1857. His fame was due principally to his plays of which "Magda" was considered the best. Died in Berlin, Nov. 21, 1928.

**Sue, Marie Joseph Eugene**, a French novelist; born in Paris Dec. 10, 1804. He adopted his father's profession of medicine, became a surgeon in the army, and served in Spain in 1823. In 1825 he joined the naval service, and in the capacity of surgeon was present at the battle of Navarino in 1827. On his father's death in 1829, he inherited an immense fortune, and, having abandoned his profession, he devoted himself to

literary composition. His first work was a sea novel entitled "Kernock the Pirate." His most famous works are: "The Mysteries of Paris," and "The Wandering Jew." In 1850 he was elected to the Constituent Assembly, and sat as an advanced radical. After the coup d'etat by Napoleon III. in 1851 he left France and retired to Savoy. He died in Annecy, Savoy, July 3, 1857.

**Suet**, the solid fat deposited round the loins and kidneys of the ox or sheep, the latter being the more solid, and containing more stearin than beef fat, but less palmitin. Both contain a little olein. When rendered down it forms tallow. Chopped suet is used in cooking for making boiled puddings, and for various other purposes, as stuffing, etc.

**Suetonius Tranquillus, Caius**, a Roman author; lived and wrote between A. D. 75 and 160. The date of his death is unknown. He was a voluminous writer. His works, in part enumerated by Suidas, consisted of grammatical treatises and works antiquarian, legal, moral, and biographical, most of which have been lost. His "Lives of the Twelve Cæsars," "Lives of Eminent Grammarians," and a portion of "Lives of Eminent Rhetoricians," survive. On the first his reputation rests. It is pregnant with interest, replete with curious information and endless anecdote and scandal bearing on the imperial coterie—a perfect storehouse, in fact, of details of the profligacy and lust of the Cæsar family, set forth with all the sincerity, impartiality, and relish of an arch gossip. Yet withal there is no reason to doubt his veracity. As a writer his language is brief and precise, occasionally obscure, but without affectation.

**Suevi**, an appellation of various Germanic tribes in classic authors; used somewhat loosely, as we find it employed to designate peoples widely removed from each other. On six different occasions tribes probably Germanic, though possibly mixed with Celtic and Slavonic elements, appear in history under this name. (1) Cæsar mentions Suevi living on the E. bank of the Rhine, and possessing 100 villages. (2) Tacitus places them N. and

S. of this, on both sides of the Upper and Middle Elbe. (3) In the 2d and 3d centuries they appear along with the Quadi and Marcomanni in Moravia and Bohemia. (4) In 406 Suevi cross the Rhine along with the Vandals and Alans, and break into Spain, settling more especially in Leon and Castile, whence they were driven by the Visigoths in 584. (5) In 420 another tribe called Suevi are spoken of in Upper Germany, who left their name to the modern Swabia. (6) In the 6th century we hear of Nordsuevi, with a village of Swelon on the Upper Elbe.

**Suez Canal.** In 1854 M. de Lesseps, a member of the French diplomatic service in Egypt, obtained from the pasha the concession of building a ship canal from Tyneh (near the ruins of ancient Pelusium) to Suez. In 1855 a new European commission was appointed, which reported that M. de Lesseps's scheme was practicable. The result of the report was the formation of a joint-stock company, and the work was accordingly begun. The canal was to be dredged through Lake Menzaleh, which runs far into the land directly toward Suez, to be connected with Lake Timsah, the Bitter Lake, and other marshy swamps, and so with Suez. Only a third of the way required to be excavated through the sands and rocks of the desert. Work was begun in the end of 1860. On Nov. 16, 1869, the Suez canal was opened in form, in presence of the Khedive, the Empress of the French, the Emperor of Austria, the Crown Prince of Prussia, and others.

In the early part of the World War the Turks made a determined effort to destroy or cripple this important waterway. They began a strong movement on February 3, 1915, and made a vigorous attack on August 4, 1916, but were repulsed all along their line.

**Sufism**, the pantheistic mysticism of the Mohammedan East, which strives for the highest illumination of the mind, the most perfect calmness of the soul, and the union of it with God by an ascetic life and the subjugation of the appetites. This pantheism, clothed in a mystico-religious garb,

has been professed since the 9th and 10th centuries by a sect which at present is gaining adherents continually among the more cultivated Mohammedans, particularly in Persia and India. The name is from *sufi*, a religious ascetic, an Eastern term applied to all members of religious monastic bodies leading an ascetic life. The Sufis were originally devout persons who, perplexed by the discord prevailing among the various systems of Mohammedan philosophy in the 2d century of the Hegira, found consolation in pious mysticism. Their teachings, though at first consonant with orthodox Mohammedanism, gradually led to a mode of thought totally irreconcilable with the Koran. About the beginning of the 10th century the Sufis divided into two branches, one of which followed Bostanie, who openly embraced pantheism, and the other Juneid, who sought to reconcile Sufism with Mohammedanism. Among eminent Persian poets belonging to the Sufis we may mention Hafiz, a distinguished Sufi; Ferid-ed-din, and Jami. The celebrated philosopher and jurist Alhazzali was also a Sufi.

**Sugar**, a sweet, crystallized substance manufactured from the expressed juice of various plants, especially from the sugar cane; also, any substance more or less resembling sugar in any of its properties; as sugar of lead; figuratively, sweet, honeyed, or soothing words or flattery, used to disguise or hide something distasteful.

In 1926 there were 204 manufacturing plants engaged in the sugar industries, comprising production of beet sugar, cane sugar, and sugar refining. There were 25,440 wage earners, paying \$32,454,135 wages, and \$648,520,710 for raw materials, and yielding products having a combined value of \$752,406,794. The total value of the refined sugar produced was \$606,632,783.

**Sugar Cane**, a strong, cane-stemmed grass, from 8 to 12 feet high, producing a large, feathery plume of flowers. It is wild or cultivated in the Southern United States, India, China, the South Sea Islands, the West Indies, and South America, flourishing in the zone or belt from the equator to 35° or 40° N. and S.

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The land chosen for its cultivation is usually a good loam or light clay well manured. The leafy ends of the canes of the preceding season are cut off, or the whole cane is cut up, each piece being made to contain two nodes or joints. Twenty thousand of these are planted on each acre in January and February, the harvest begins early in December, and the cutting and crushing of the canes are carried on till January or February. There are several varieties of the sugar cane.

**Sugar Maple**, an American tree, sometimes 80 feet high, largely prevailing in New Brunswick, Nova Scotia, part of the United States, etc. It is tapped in the spring for its juice, which yields sugar.

**Sugar Mill**, a mill for expressing the juice from sugar canes. It has usually three rollers; two in the same horizontal plane, and the third over and between these. The canes are fed in between the upper and first horizontal rollers, where they receive their first squeeze, the juice running down into a trough at the base of the mill; they then travel onward, receiving a second squeeze between the top roller and the second horizontal roller.

**Suicide**, the act of designedly destroying one's own life. To constitute suicide, in a legal sense, the person must be of the years of discretion and of a sound mind.

The causes leading to suicide have been variously assigned, but the following based on actual reports per 100 cases may be regarded as reliable: In European countries the record shows that 19 per cent. was due to vice and crime; 18 per cent. to madness and delirium; 14 per cent. to loss of intellect; 11 per cent. to alcoholism; 6 per cent. to moral sufferings; 4 per cent. to family matters; 4 per cent. to poverty and want; 3 per cent. to consequence of crime; 2 per cent. to disease; and 19 per cent. to unknown causes. In the United States the causes run about the same, except that insanity leads the list. It is also shown that two-thirds of the suicides are committed during the daytime, and that June is the favorite month, and the 11th the favorite day of the month.

## Sulla

**Sulla, Lucius Cornelius**, a Roman dictator; born in 138 B. C. He received a good education, but was notorious from his youth upward for his excessive dissipation and debauchery. He served with distinction under Marius in the Jugurthine (107 B. C.) and Cimbrian (104-102) wars, and in 93 was chosen praetor. For his services in the Social War (90-88) he was appointed consul (88 B. C.), and the province of Asia, with the conduct of the war against Mithridates, fell to his lot. Marius was also ambitious for this command and resorted to acts of violence to carry his point, by which Sulla was compelled to escape from Rome. But Sulla reentered the city at the head of his army, drove Marius to Africa, and then sailed for Greece at the beginning of 87 B. C. He expelled the armies of Mithridates from Europe (86), crossed into Asia (84), and was everywhere victorious, gaining plenty of wealth for himself and his soldiers, and forcing Mithridates to conclude a peace. Marius had died in 86 B. C., after proscribing Sulla and confiscating his property, but the party of Marius was still strong. Sulla now hastened to Italy, and landed at Brundisium with 40,000 men, 83 B. C. He was joined by many of his friends who had been banished from Rome. He gained four battles over the Roman forces in person, and defeated a Samnite army under Telesinus. He entered the city victorious in 82, and immediately put to death between 6,000 and 7,000 prisoners of war in the circus. Rome and all the provinces of Italy were filled with the most revolting scenes of cruelty. After satisfying his vengeance by the murder or proscription of thousands he caused himself to be named dictator for an indefinite period (81 B. C.). He now ruled without restraint, repealed and made laws, abolished the tribuneship, and settled his veterans in various parts of Italy. In 79 B. C. he laid down his dictatorship, and retiring to Puteoli abandoned himself to all sorts of debauchery. He died in 78 B. C.

**Sullivan, Sir Arthur Seymour**, an English composer; born in London, England, May 13, 1842; became a member of the boy choir in the

## Sullivan's Island

Chapel Royal at St. James's, and at the age of 13 published his first composition. In the following year he won the Mendelssohn scholarship at the Royal Academy of Music, and in 1858, while at Leipzig, he composed his "Feast of Roses" and the music to Shakespeare's "Tempest." Subsequently he produced numerous songs, operas, oratorios, etc. He was knighted in 1883 and made chevalier of the Legion of Honor of France in the same year. He died in London, Nov. 21, 1900.

**Sullivan, James William**, an American writer; born in Carlisle, Pa., March 9, 1848. He was author of: "Working People's Rights," "A Concept of Political Justice," "Direct Legislation Through the Initiative and Referendum"—this book started the referendum movement in the United States, etc.

**Sullivan, John**, an American military officer; born in Berwick, Me., Feb. 17, 1740. He was commissioned a major of militia in 1772; represented New Hampshire at the Continental Congress held in Philadelphia, Pa., in 1774; was appointed a Brigadier-General of the American army in 1775; and given command of the left wing of the forces then laying siege to Boston. In June, 1776, he was placed in command of the army on the Canadian boundary. On Aug. 29, 1778, he attacked the British at Butt's Hill, near Newport, R. I., and after a 12-hours' severe battle, in which about 6,000 men fought on each side, the Americans drove the British from the field at the point of the bayonet. Lafayette pronounced this engagement the best contested one of the whole war. Sullivan resigned from the army in 1780 owing to ill health, and was a second time a delegate to the Continental Congress. He later resumed the practice of law in New Hampshire; and was United States judge of that State from 1789 till his death, in Durham, N. H., Jan. 23, 1795.

**Sullivan's Island**, an island at the N. side of the entrance to Charleston harbor, S. C.; 6 miles from Charleston. It is 6 miles long, but very narrow, and is a favorite sea-bathing resort. On it is situated Fort Moul-



trie, a position of importance during the Civil War.

**Sully, Alfred**, an American military officer; born in Philadelphia, Pa., in 1821; was graduated at the United States Military Academy in 1841, and assigned to the 2d Infantry, with which he took part in the Seminole War; served in the war with Mexico in 1846-1847; and was then assigned to duty on recruiting service in the North. In 1861-1862 he served in Washington and in the latter year was made colonel of the 3d Minnesota Volunteers; won distinction in the battles of Fair Oaks and Malvern Hill; was promoted Brigadier-General of volunteers in October, 1862, and later participated in the battle of Chancellorsville. In 1863 he was given command of the Department of Dakota, and greatly distinguished himself in his campaigns against hostile Indians. At the close of the war he was brevetted Major-General of volunteers, and Brigadier-General, U. S. A., for gallantry during the war; and was promoted colonel of the 10th Infantry in 1872. He died in Fort Vancouver, Wash., April 17, 1879.

**Sully, Maximilien de Bethune, Duc de**, Marshal of France and first minister of Henry IV.; born in Bosny, France, Dec. 13, 1560; was educated in the Protestant (Calvinistic) faith. He distinguished himself at the battle of Ivry in 1590, where he was severely wounded, and was afterward of great assistance to the king in resisting the intrigues of the League. In 1597 he was appointed controller of finance, and by his excellent administration largely reduced taxation, and eventually paid off a state debt of 300,000,000 livres. He also received many other offices and dignities, and became adviser of the king in all his councils. His industry was unwearied, and he did all he could to encourage agriculture, which he regarded as the mainstay of the state. In 1606 the territory of Sully-sur-Loire was erected into a duchy in his favor. After the murder of Henry IV. (1611) he retired from court and resigned most of his charges. He now occupied himself chiefly with agriculture, and rarely took part in political affairs. He was created

Marshal by Richelieu in 1634, and died in Villebon Castle, France, Dec. 22, 1641. He left memoirs which have been published in English.

**Sully, Thomas**, an American artist; born in Horncastle, Lincolnshire, England, in 1783; emigrated to the United States with his parents in 1792; studied painting in Charleston; established himself in Richmond, Va., as a portrait painter in 1803; removed afterward to New York; and in 1809 settled in Philadelphia where he afterward lived. His reputation as one of the leading American portrait painters is founded on numerous works, the best known of which are the full-length portraits of Dr. Benjamin Rush, Commodore Decatur, Thomas Jefferson, and Lafayette. The Boston Museum possesses his celebrated picture of "Washington Crossing the Delaware." He died in Philadelphia, Nov. 5, 1872.

**Sulphates**, salts of sulphuric acid. Sulphuric acid is dibasic, forming two classes of sulphates, viz., neutral sulphates, in which the two hydrogen atoms of the acid are replaced by metal, and acid sulphates, in which one hydrogen atom only is so replaced. Of the sulphates, some are found native; some are very soluble, some sparingly soluble, and some insoluble. The most important sulphates are: Sulphate of aluminum and potassium, or alum; sulphate of ammonium, employed for making carbonate of ammonia; sulphate of copper, or blue vitriol, much used as an escharotic in surgery, and also used in dyeing and for preparing certain green pigments; sulphate of iron, or green vitriol, used in making ink, and very extensively in dyeing and calico printing; it is also much used in medicine; sulphate of calcium, or gypsum; sulphate of magnesium, or Epsom salts; sulphate of manganese, used in calico printing; sulphate of mercury, used in the preparation of corrosive sublimate and of calomel; bisulphate of potash, much used as a flux in mineral analysis; sulphate of sodium, or Glauber's salts; sulphate of quinine, much used in medicine; sulphate of zinc or white vitriol, used in surgery, also in the preparation of drying oils for varnishes, and in the reserve or resist

## Sulphur

pastes of the calico printer. Many double sulphates are known.

**Sulphur.** Sulphur, or brimstone, has been known and used from the earliest times. It is found native in mechanical combination with various earthy impurities in most volcanic districts, more particularly in Sicily and the countries bordering on the Mediterranean. The native sulphur of commerce is derived chiefly from Sicily, where it occurs in beds of blue-clayey formation. It is found native in two forms—in transparent amber crystals, as virgin sulphur; or in opaque, lemon-yellow crystalline masses, as volcanic sulphur. It is found in combination with the different metals, forming metallic sulphides, in nearly every portion of the earth. Zinc blende, iron, and copper pyrites, galena, cinnabar, gray antimony, and realgar, are a few instances of the valuable ores containing sulphur. In its oxidized condition, as sulphuric acid, it is also very largely distributed over the mineral kingdom.

**Sulphuric Acid**, a very important acid which occurs in nature in large quantities, both in the vegetable and mineral kingdoms, in combination with the various bases, more particularly the alkalis, alkaline earths, and the oxides of iron, copper, lead, zinc, alumina, etc. Its mineral combinations are generally known as vitriols, a name which, in the case of the sulphates of iron, copper, and zinc, has been transferred to the manufactured products. Sulphuric acid is formed by the oxidation of sulphurous acid, or some other oxide of sulphur. In its perfectly anhydrous condition, it occurs as a white crystalline fibrous mass, somewhat resembling asbestos in appearance. It can be molded in the fingers like wax without charring the skin; it fumes in the air, and is very deliquescent, hissing violently when thrown into water; thereby becoming sulphuric acid. It chars wood, paper, sugar, and other similar substances, by abstracting water from them. It melts at 65° F., and boils at 110° F., forming a colorless vapor. It possesses no acid properties whatever, and is not regarded as such by the followers of Gerhardt, by whom it is called sulphuric anhydride.

## Sulphuric Ether

When pure, sulphuric acid is a heavy, oily colorless, inodorous liquid, and having a sp. gr. of 1.842. It is intensely caustic, and chars almost all organic substances, by abstracting water from them. Its affinity for water is very great, doubling its weight by the absorption of vapor from the air, if left exposed in any open vessel for several days. It mixes with water in all proportions. It freezes at 29° F., and boils at 590° F., its vapor being colorless and very suffocating, forming dense fumes in moist air. When mixed with water, it evolves considerable heat. Sulphuric acid is the starting point of nearly every important chemical manufacture. Acetic, nitric, and hydrochloric acids are made by its means; and it will be only necessary to allude to the important part it plays in the manufacture of soda from common salt, to appreciate the saying of Liebig, "that the amount of sulphuric acid made in a country is a sure index of its wealth and prosperity." In the hands of the chemist it has numerous and important uses. Its salts, the sulphates, are among the most important chemical agents in the laboratory. In its concentrated form, it is in daily use by the scientific chemist to promote the crystallization of deliquescent substances in vacuo, from its intense avidity for water. The sulphates are a numerous and important class of salts. They are mostly composed of an equivalent of acid and an equivalent of the metallic oxide. They vary somewhat in the numbers of atoms of water of crystallization, some being anhydrous, others containing as many as 12 equivalents.

**Sulphuric Ether** (ethylic, vinic, or ordinary ether), a colorless transparent liquid, of a pleasant smell and a pungent taste, extremely exhilarating, and producing a degree of intoxication when its vapor is inhaled by the nostrils. It is produced by distilling a mixture of equal weights of sulphuric acid and alcohol and by various other means. It is employed in medicine as a stimulant and antispasmodic. Ether, by its spontaneous evaporation, produces a great degree of cold, and is used in the form of spray in minor surgical operations.

for freezing the part, and thus rendering it insensible to pain.

**Sulphurous Acid**, an acid formed by the union of an equivalent of sulphur with two of oxygen in a variety of ways, the most familiar being its production during the combustion of sulphur in the open air or in oxygen. The gas produced is endowed with the properties of a weak acid, and is the sole product of the combustion, provided the air or oxygen be perfectly dry. It has a pungent, suffocating odor, and when in a concentrated form cannot be breathed with impunity. It is not inflammable, and extinguishes burning bodies. At ordinary temperatures, sulphurous acid is a gas; but it may be readily condensed into a liquid by a pressure of three atmospheres, or by a freezing mixture of ice and salt.

**Sultan**, in Arabic, signifies "mighty one, lord." It is the ordinary title of Mohammedan rulers. The ruler of Turkey assumes the title of Sultan-es-selatin, "Sultan of sultans." The title sultan is also applied to the sultan's daughters, and his mother, if living, is styled Sultan Valide.

**Sulu Islands**, a group in the Indian Archipelago, consisting of more than 150 islands, which stretch from the N. E. point of Borneo to the Philippine Islands; total estimated area, 1,600 square miles; pop. estimated at 200,000. The islands are of volcanic origin, and produce all kinds of tropical plants and trees. The islands belong to the United States.

**Sulzer, William**, an American statesman; born in Elizabeth, N. J., March 18, 1863; admitted to the bar and settled in New York City to practice in 1884; member New York Assembly in 1890-1894, and speaker in 1893; member of Congress in 1895-1912; conspicuous in legislation for the parcels post service and the abrogation of the treaty with Russia of 1832; elected governor of New York in 1912; and impeached, removed from office, and elected to the legislature in 1913.

**Sumac** (*Rhus*), a genus of shrubs with pinnate leaves and small flowers. They all have a lactescent acid juice, and most of them possess valuable tanning properties. More than 70

species are known. *R. typhina* is an American species with hairy branches, hence its common name of stag's-horn sumac. It produces small red berries, and is cultivated in European gardens for ornament. *R. glabra*, another American species, is also grown for ornament, and its berries and branches are used for dyeing purposes. *R. venenata*, commonly called dogwood or poison sumac, is a shrub of the American swamps. It grows from 12 to 20 feet high, and produces greenish-white flowers. It is extremely poisonous, in some cases giving rise to inflammation of the skin followed by a pustular eruption. *R. radicans*, often called poison ivy, is a climbing variety. It affects certain individuals in the same manner as the poison sumac, but it is less virulent. The leaves of several of these species are now extensively collected in America for tanning and other purposes. The celebrated Japan varnish is obtained from a species of *Rhus* with downy and velvety leaves. The varnish oozes from the tree when wounded, and grows thick and black when exposed to the air. See also POISON IVY.

**Sumatra**, an island in the Indian Seas immediately under the equator; separated from the peninsula of Malacca by the Straits of Malacca and from Java by the Straits of Sunda; greatest length about 1,000 miles; breadth, about 240 miles; area, 161,612 square miles; pop. (1923) 5,027,100. Banca and other islands adjoin the coast. The W. side of the island is mountainous, with peaks ranging in height from 2,000 feet in the S. to 5,000 feet further N.; and culminating in Indrapura, a volcano 12,572 feet high. The E. side spreads out into interminable plains. There are several volcanoes in the island. Copper, tin, and iron are found in abundance and deposits of coal exist. The chief rivers are the Rokan, Musi, Jambi, and Indragiri, which all form extensive deltas at their mouths. Sumatra enjoys great equability of climate, but in many low-lying parts is unhealthy; rain falls almost incessantly in the S. Mangroves grow near the coast, and at higher elevations myrtles, palms, figs, and oaks of various species are met with. The camphor tree prevails in the N., and

among vegetable curiosities are the upas tree and the gigantic rafflesia. Pepper, rice, sugar, tobacco, indigo, cotton, coffee, are cultivated for export, and camphor, benzoin, catechu, gutta-percha and caoutchouc, teak, ebony, and sandalwood are also exported. The fauna includes the elephant, the tapir, the rhinoceros, the tiger, the orang-outang and other apes, some species of deer and antelope, and numerous birds and reptiles.

The island is for the most part under the authority of the Dutch, and their possessions are divided into six governments. Sumatra has a very mixed population consisting of Malays, Chinese, Arabs, and many native tribes. The Battas are a peculiar and interesting race approaching the Caucasian type. Writing has been known among them from a very early period and their ancient books are written in a brilliant ink on paper made of bark.

The tidal wave accompanying the volcanic eruption of Krakatoa in 1883 caused great destruction on the S. coast of Sumatra.

**Summer**, that season of the year when the sun shines most directly on any region; the warmest season of the year. N. of the equator it is commonly taken to include the months of June, July, and August; though some substitute May, June, and July. The former view conforms better to fact. July, which by this arrangement is mid-summer month, is the hottest in the year, for though the maximum of heat is obtained on June 21, the longest day, the amount received for many subsequent days is greater than that lost by radiation, and the temperature continues to increase. Summer is the appropriate season for the hay harvest and for the ripening of the earlier fruits. Astronomically considered, summer begins in the Northern Hemisphere, when the sun enters the sign of Cancer about June 21, and continues till Sept. 23, during which time he passes through Cancer, Leo, and Virgo.

**Summer Duck** is a native of North America, and in the breeding season is distributed over the United States, migrating S. in winter. It is capable of domestication. Called also

wood duck, from its habit of nesting in holes in trees.

**Summons**, in law, a writ commanding the sheriff, or other authorized officer, to notify a party to appear in court, to answer a complaint made against him, and in the same writ specify some day therein mentioned.

**Sumner, Charles**, an American statesman; born in Boston, Mass., Jan. 6, 1811; was educated at Harvard University. In 1834 he was called to the bar, and shortly afterward became reporter of the United States Circuit Court. In 1836 he published three volumes of Judge Story's decisions, subsequently known as "Sumner's Reports," and edited a periodical called the "American Jurist." He visited Europe in 1837, and returned to Boston in 1840 where he resumed his legal practice. Between 1844 and 1846 he edited and published "Vesey's Reports" in 20 volumes. In 1851 he was elected to the Senate of the United States and distinguished himself by his strong antipathy to slavery. In May, 1856, after delivering a speech vigorously attacking the slaveholders, he was violently assaulted by Preston S. Brooks, member from South Carolina. His injuries compelled him to absent himself from public duties for nearly four years. He was a supporter of Lincoln and Hamlin, and in 1861 he became chairman of the Senate Committee on Foreign Relations. He was an enemy to the policy of President Johnson and opposed the home and foreign policy of President Grant. After the latter's reelection in 1872 Sumner seldom appeared in debate. He died in Washington, D. C., March 11, 1874.

**Sumner, Charles Allen**, an American lawyer; born in Great Barrington, Mass., Aug. 2, 1835; received an academic education; and was a member of Congress in 1883-1885. Afterward he was editor of several newspapers, including the San Francisco "Mirror," the Sacramento "Sentinel," the San Francisco "Herald," etc. Died 1903.

**Sumner, Edwin Vose**, an American military officer; born in Boston, Mass., Jan. 30, 1797. He was a captain in the Black Hawk war; served with distinction in the Mexican war

in 1846-1847, especially at the battles of Cerro Gordo and Molino del Rey; was made major in 1846; governor of New Mexico in 1851-1853; in 1855 was made colonel and was one of the escort of Abraham Lincoln from Springfield, Ill., to Washington. D. C., in February, 1861; in March, 1861, promoted Brigadier-General U. S. A. During the Civil War he commanded a corps at the battle of Fair Oaks, May 31-June 1, 1862; at Malvern Hill July 1, and at the battle of Antietam Sept. 17 of that year; he also commanded one of the three great divisions of Burnside's army at the battle of Fredericksburg, Dec. 13, 1862; was given command of the Department of the Missouri in 1863. He died in Syracuse, N. Y., March 21, 1863.

**Sumner, George Watson**, an American naval officer; born in Constantine, St. Joseph co., Mich., Dec. 31, 1841; was appointed to the navy in 1858 and attended the United States Naval Academy till 1861. In the Civil War he took part in the bombardment of Forts Jackson and St. Philip; commanded the "Massasoit" on the James river, and with the "Onondaga," forced the Confederate ironclad to relinquish the purpose of attacking Grant's transports and base of supplies at City Point, Va. After the war he served in various capacities, was commandant of the Naval Station, Port Royal, S. C., in 1899-1901; commander-in-chief, South Atlantic Squadron, in 1902-3; retired with rank of rear-admiral, 1903.

**Sumner, Samuel Storrow**, an American military officer; born in Pennsylvania, Feb. 6, 1842; was appointed to the army from New York in 1861; served with distinction during the Civil War, and against hostile Indians in the campaign of 1869. In May, 1898, he was appointed a Brigadier-General of volunteers and in the Spanish-American War, was assigned to duty in Cuba where he took part in the Santiago campaign. He was mustered out of the volunteer service in 1899, and ordered to England as military attache, but left there in 1900 to join the United States troops in China. Later he was sent to the

Philippines, where he commanded the 1st district of Southern Luzon. Retired as Major-General, 1906.

**Sumner, William Graham**, an American political economist; born in Paterson, N. J., Oct. 30, 1840; was graduated at Yale in 1863; studied at Geneva, Gottingen, and Oxford; was tutor at Yale in 1866-1869; in 1867 took orders in the Protestant Episcopal Church; was assistant at Calvary Church, New York, and rector of the Church of the Redeemer, Morristown, N. J.; appointed Professor of Political Economy and Social Science at Yale College in 1872. He died in 1910.

**Sumter, Thomas**, an American military officer; born in Virginia in 1734. In the early part of the Revolutionary War he was lieutenant-colonel of a regiment of South Carolina riflemen, but after the capture of Charleston in 1780, he was made a Brigadier-General of light cavalry. In the spring of 1781 he again began active service and took a distinguished part in the battle of Eutaw Springs. The thanks of Congress were tendered him in 1791, and he was afterward sent to that body as a representative of South Carolina. In 1809 he was appointed United States minister to Brazil and two years later was elected United States Senator from his native State. At the close of his term he retired to private life, and died near Camden, S. C., June 1, 1832.

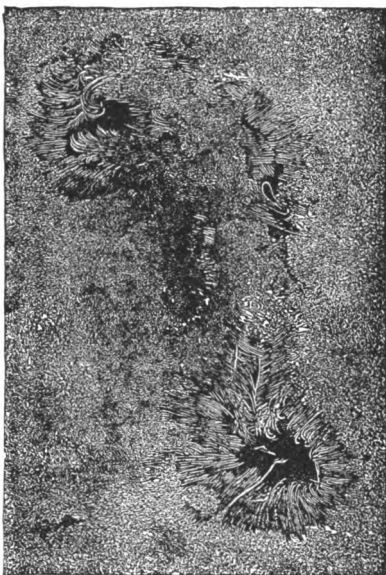
**Sumter, Fort** (named after Gen. Thomas Sumter, 1734-1832), an American fort associated with both the beginning and the end of the Civil War; built of brick, in the form of a truncated pentagon 38 feet high, on a shoal, partly artificial, in Charleston Harbor, 3½ miles from the city. On the withdrawal of South Carolina from the Union in December, 1860, Major Anderson, in command of the defenses of the harbor, abandoned the other forts, and occupied Fort Sumter, mounting 62 guns, with a garrison of some 80 men. The attack on the fort was opened by General Beauregard April 12, 1861, and it surrendered on the 14th; this event marked the beginning of the war. The Confederates strengthened it, and added 10 guns and 4 mortars. In April, 1863, an attack by a fleet of monitors failed.



In July batteries were erected on Morris Island, about 4,000 yards off, from which in a week 5,000 projectiles, weighing from 100 to 300 pounds, were hurled against the fort; at the end of that time it was silenced and in part demolished. Yet the garrison held on amid the ruins and in September beat off a naval attack; and in spite of a 40 days' bombardment in October-December, 1863, and for still longer in July and August, 1864, it was not till after the evacuation of Charleston itself, owing to the operations of General Sherman, that the garrison retired, and the United States flag was again raised April 14, 1865; an event soon followed by the evacuation of Richmond and the Confederate surrender.

**Sun**, the central orb of the solar system, that around which revolve the earth and other planets. The sun appears to be a perfect sphere, with a diameter of 866,900 miles; its mean density is about  $\frac{1}{4}$ , taking that of the earth as 1; its mean distance from the earth is taken as 93,000,000 miles. It rotates on its own axis; this axis of rotation being to the ecliptic at an angle of  $82^{\circ} 40'$ ; and its rotation period is variously estimated at from 25 to 28 days. The mass of the sun is about 750 times that of the solar system combined and the center of gravity of the solar system lies somewhere in the sun, whatever may be the relative positions of the planets in their orbits. The dark spots on the sun discovered by Galileo have been shown to be hollows, and their depth has been estimated to be at from 3,000 to 10,000 miles. The spots are very changeable in their figure and dimensions, and vary in size from mere points to spaces of 50,000 miles or more in diameter. It is from observations of these spots that the sun's rotation on its axis has been calculated. The frequency of sun spots attains a maximum every  $10\frac{1}{2}$  years, the number of spots falling off during the interval to a minimum, from which it recovers gradually to the next maximum. This periodicity has been thought to be intimately connected with the meteorological phenomena observed on the earth, especially with the rainfall. Spots are called *maculae*, brighter portions of the sun are called *faculae*, and the lesser markings are

called mottlings. The sun is now generally believed to be of gaseous constitution, covered with a sort of luminous shell of cloud formed by the precipitation of the vapors which are cooled by external radiation. This dazzling shell is termed the photosphere. The spots are supposed to be cavities in this cloud-layer, caused by the unequal velocities of neighboring portions of the solar atmosphere. Zollner, who considers the body of the sun to be liquid, sees in them slags or



SUN SPOTS.

scoriae floating on a molten surface, and surrounded by clouds. It is estimated that the sun's radiation would melt a shell of ice covering its own surface to about a depth of between 39 and 40 feet in one minute, but the temperature of the surface has not yet been ascertained. It is evident, however, that the temperature and radiation have remained constant for a long period. The photosphere is overlaid by an atmosphere which is shown by the spectroscope to contain

nearly all materials which enter into the composition of the sun. And in the lines of the spectrum of sunlight is found proof of the existence of the solar atmosphere of the following substances: Iron, titanium, calcium, manganese, nickel, cobalt, chromium, barium, sodium, magnesium, copper, hydrogen, zinc, sulphur, cerium, strontium, and potassium. In 1706 Captain Stannyan observed a blood-red streak just before the limb of the sun appeared after a total eclipse, and such appearances were subsequently observed, being first scientifically described in 1842 under the names of flames, protuberances, or prominences. In 1868 the spectroscope showed that these appearances were due to enormous masses of glowing hydrogen gas floating above the sun, similarly to clouds in our atmosphere. The region outside of the photosphere in which these colored prominences are observed has been called the chromosphere, which has an average depth of from 3,000 to 8,000 miles. The incandescent hydrogen clouds stretch out beyond this to altitudes of 20,000 to 1,000,000 miles, and jets of chromospheric hydrogen have been observed to reach a height of 200,000 miles in 20 minutes and disappear altogether within half an hour.

Outside the chromosphere, extending very far out from the sun, is the corona, an aurora of light observed during total eclipses, and which is now the chief object to be observed by eclipse expeditions. This phenomenon has been shown to be connected with the existence of what is called the "coronal atmosphere," but the nature of this atmosphere is as yet undetermined. The amount of light sent forth by the sun is not exactly measurable, but the amount of heat has been pretty accurately computed, and it is equivalent in mechanical effect to the action of 7,000 horse-power on every square foot of the solar surface, to the combustion on every square foot of upwards of  $13\frac{1}{2}$  cwts. of coal per hour.

One of the largest spots that has appeared on the sun in recent years was discovered in October, 1903, by John A. Brashear, chancellor of the Western University of Pennsylvania. Its area is so great that it can be

seen by the naked eye if smoked glass is used.

"We call the comparatively dark areas 'spots,'" said Professor Brashear, "but some of them have many times the area of the earth. In square miles this newly discovered spot is 12 times the area of the earth. The spots on the sun indicate great solar storms. The present spot is probably the largest that has been seen for many years."

Of the effect of the sun spots on the earth Professor C. A. Young says: "While it is not unlikely that investigation will establish some real influence of sun spots upon our terrestrial meteorology and determine its laws, it is practically certain that this influence is extremely slight and so masked and veiled by other influences more powerful that it is extremely difficult to bring to light."

**Sun, Eclipses of the,** caused by the moon coming between the earth and the sun, may be either partial, total, or annular. In a partial eclipse the observer is situated in the penumbra of the moon's shadow, and only a part of the sun's light is cut off on one side. In a total eclipse the observer is in the umbra of the moon's shadow, and all the light of the sun is cut off except that from the prominences and corona surrounding the sun. In an annular eclipse the disk of the moon is wholly projected on that of the sun, but is not large enough to cover it completely, so that a ring of sunlight is left all round the moon. At present the only scientific importance of partial and annular eclipses is the use that may be made of them for determining the relative positions of the sun and moon, and thus correcting the elements of the terrestrial and lunar orbits. But the fleeting minutes of every total eclipse are now utilized so far as possible to study the sun's surroundings, especially the mysterious corona, which is so faint that it is only visible when the bright light of the photosphere is cut off.

**Sun Bear,** a sub-genus, comprising bears found in India and the Eastern Archipelago. The Tibetan sun bear is a black species with a white patch on the breast. The Bornean sun bear has an orange-colored patch. All the sun bears are slenderly made, and their

fur is not so heavy and thick as that of the other bears.

**Sunday, William Ashley**, an American evangelist; born in Ames, Ia., Nov. 19, 1863; acquired a collegiate education; was a professional baseball player in 1883-90; assistant Secretary, Y. M. C. A. of Chicago in 1891-5; first engaged in evangelistic work in 1896; ordained in the Presbyterian ministry in 1903. As an evangelist he was fearless, aggressive, sensational, and apparently tireless. He attracted vast audiences wherever he campaigned, numbered the "trail-hitter" by the thousands, and was noted for his large and unostentatious benefactions.

**Sunday-School**, according to Schaft, "an assembly of persons on the Lord's day for the study of the Bible, moral and religious instruction, and the worship of the true God. It is a method of training the young and ignorant in the duties we owe to God and to our neighbor."

Modern Sunday-schools date from 1780 or 1781, when Robert Raikes, of Gloucester, England, began to collect a few children from the streets of that city on Sundays, and paid teachers to instruct them in religious knowledge. The improvement in the conduct and morals of the children was so marked that, when Raikes published an account of his success, his example was followed in several other places, and in 1785 a society was formed for the establishment and maintenance of Sunday-schools in all parts of the kingdom, a large sum being expended in the payment of teachers. In 1803 the Sunday-School Union was formed to secure continuous instruction by unpaid teachers, and to publish books, tracts, and other matter, for the benefit of the cause.

The first Sunday-schools united secular with religious instruction, as did those of Borromeo and La Salle; but the spread of elementary education has to a large extent removed the necessity of teaching reading and writing on Sundays. The Society of Friends has, however, retained the practice in its large Sunday-morning schools, with great benefit as regards influence over the working classes above the age of childhood, and in some of the Wesleyan Sunday-schools, classes for elementary instruction are held early in the morn-

ing. Sunday-schools were introduced into Scotland, Ireland, and America immediately following their establishment in England. According to special Census report on "Religious Bodies." (Est. for 1924) there were in the United States 155,944 Sunday schools of all creeds, with 1,500,000 officers and teachers, and 18,000,000 scholars.

**Sunderland**, a seaport, and municipal and parliamentary borough of England, at the mouth of the Wear, county of Durham, 13 miles N. E. of Durham, and 12 miles S. E. of Newcastle. It includes nearly the whole of three parishes—Sunderland, Bishopwearmouth, and Monkwearmouth. The town is for the most part new and well built. The harbor with its docks covers 78 acres, and its entrance is formed by two stone piers with lighthouses. The staple trade interests of the place are shipping, the coal trade, and ship building, and there are also large factories for the making of marine engines, iron work, bottles, glass, earthenware, rope, etc. Coal is the chief export; the imports are chiefly timber and grain, with various raw materials and provisions, from the Baltic ports and Holland. Pop. (1921) 159,100.

**Sunderland, Jabez Thomas**, an American clergyman; born in Yorkshire, England, Feb. 11, 1842; was graduated at the University of Chicago in 1867 and at the Union Baptist Theological Seminary in 1870; was ordained in the Unitarian Church; and held pastorates in Milwaukee, Wis., Chicago, Ann Arbor, Mich., London, England, Toronto, Can., and other cities. In 1866-1895 he was editor of the "Unitarian Monthly."

**Sunderland, Le Roy**, an American author; born in Exeter, R. I. May 18, 1802; was ordained a Methodist preacher in 1823, and soon became an orator of marked eloquence, especially in the temperance and anti-slavery movements. In October, 1834, he was chairman of the meeting in New York city at which the first Methodist anti-slavery society was formed, and afterward was a prominent delegate to several anti-slavery conventions. Later he turned against Christianity and opposed it for many years. He died in Quincy, Mass., May 15, 1885.

**Sunfish**, called also opah and kingfish, is a small fish about 6 inches long. The Mola mola sunfish is a huge circular fish.

**Sunflower**, a genus of coarse, tall, herbaceous plants, with large rough leaves and yellow flowers; natives of America. One, an introduction from Peru, which has long been grown as a showy and large-flowered annual in gardens, has recently been found to possess high economic value. In Germany, Russia, India, and other countries it is now grown on a large scale. The seed-like nutlets in a natural state are excellent food for poultry and pigs; roasted they are said to be a good substitute for coffee; crushed and pressed, they yield a limpid bland oil second in value only to olive oil, either for household purposes or as a lubricator for the delicate machinery of textile fabrics, while the residuum can be used as an oil cake to fatten cattle; the stalks furnish a good fibre; the blossoms yield a brilliant lasting yellow dye, and the leaves serve as manure.

**Sunnites**, the so-called orthodox Mohammedans, in contradistinction to the Shiites or heterodox Mohammedans. They form by far the larger of the two divisions, embracing the Mohammedans of Egypt and the rest of Africa, Syria, Turkey in Europe and Asia, Arabia, etc. They chiefly differ from the Shiites in receiving the Sunna (a collection of traditions relating to Mohammedanism) as of equal importance with the Koran, while the Shiites reject it absolutely. There are several diversities in the copies of the Sunna, and the Sunnites are subdivided, on account of some minute differences of custom and law, into four minor sects. The Persians are the principal Shiites.

**Sunshine Society.** The Sunshine Society had its origin in 1896 in the office and among the workers of a New York newspaper. Its object was and is to incite the members to the performance of kind and helpful deeds, and thus bring the sunshine of happiness into the greatest number of hearts and homes. Did you ever notice how the face of a little child lights up if you smile at it as you pass on the street? That smile is a ray of sunshine for the little one. It costs you

nothing and brightens the path for the toddling feet. And so it is through life. There are many kind and helpful deeds that bring sunshine and happiness to others which really require no effort on one's own part—probably less effort than the gloomy look, the acid word, the disfiguring frown. The Sunshine Society, in short, aims to spread sunshine. Any worthy person can become a member by helping to carry on the work, and the only fee is any act or suggestion that will carry sunshine where it is needed. The annual meeting is held on the third Thursday in May in the Waldorf Astoria, New York, and the official publication is the "Sunshine Bulletin," edited by Mrs. Cynthia Westover Alden, while the international medium is the Ladies' Home Journal, of which Mr. Edward Bok is editor. The Sunshine Society, from a small beginning has spread to both hemispheres, and its success has more than fulfilled the hopes of its founder and President General, Mrs. Alden.

**Sunstroke**, a very fatal affection of the nervous system, which is very common in India and tropical countries, and also in more favored regions in extremely hot weather. The symptoms of the disease are liable to be greatly modified in different cases. In the cerebro-spinal, the commoner form, the symptoms usually come on gradually; nausea and giddiness may be present at first; but the most striking feature of the disease is either wild delirium or coma, with a pungently hot skin and extremely high temperature—106° F. or upward. Even those who recover from this form of the disease are apt to suffer for a long period, or it may be permanently, from severe headache, epilepsy, enfeebled mental power, or other nervous disorders. Intermediate varieties are also met with, forming links between these two extremes. The mortality from sunstroke is about 50 per cent. of those affected. In the cases that terminate favorably a gradual remission of the symptoms takes place; and when the skin becomes cool and moist, and sleep has been procured (phenomena which usually occur within 36 hours of the attack), the patient may be regarded as out of danger.

**Sun Worship**, a form of nature worship, widely, though by no means universally diffused at the present day among races of low culture. Sun worship found its highest form of development in Peru, where the sun was held to be the ancestor and founder of the dynasty of the Incas, who made sun worship the great State religion.

**Super, Charles William**, an American educator; born in Pottsville, Pa., Sept. 12, 1842; was graduated at Dickinson College in 1866 and studied in Tubingen, Germany, in 1869-1871. He was Professor of Languages at the Cincinnati Wesleyan College in 1872-1878; and subsequently became Professor of Greek at the Ohio University, and was its president in 1884-1901.

**Super, Ovando Byron**, an American educator; born near Newport, Pa., March 2, 1848; was graduated at Dickinson College in 1873; was Professor of Languages at the University of Denver in 1880-1884; and held the chair of modern languages at Dickinson College in 1894-1900, and of Romance Languages in 1900-13; editor of many foreign texts.

**Superior**, city, port of entry, and capital of Douglas county, Wis.; at the W. end of Lake Superior, on several railroads, and opposite Duluth, Minn.; has three deep, sheltered, and connected harbors, extensive coal docks, many large grain elevators, immense plant for building the famous whaleback steamers, steel barge works, saw and planing mills, and iron, wagon, and chain works; is a great shipping point for coal, grain, and lumber; and comprises the former ports of East, West, South, and Old Superior. Pop. (1920) 39,671.

**Superior, Lake**, the extreme W. and most extensive of the great lakes of the St. Lawrence basin, in North America, being the largest existing body of fresh water. Its length, E. to W., is about 390 miles, with a mean breadth of about 80 miles, so that its area may be taken at about 31,200 square miles. The mean depth is estimated at 900 feet, and the height of its surface at about 602 feet above the Atlantic. It receives upward of 50 rivers, but none is of much importance except the St. Louis which

enters at its S. W. extremity, and the Riviere au Grand Portage. During the melting of the snow, these and the other rivers sweep into the lake vast quantities of sand, boulder stones, and drift timber. It discharges itself at its E. extremity into Lakes Huron and Michigan, by the river and falls of St. Mary. This lake embosoms many large and well-wooded islands, the chief of which is Isle Royal. Toward each extremity the lake contracts in width, and at the lower end terminates in a bay which falls into the outlet, the St. Mary's river, at the two opposite headlands of Gros Cape on the N. and Point Iroquois on the S. Thence to the mouth of the St. Mary's at Lake Huron is about 60 miles. The navigation of this river is interrupted 20 miles below its source at the Falls of St. Mary, or, as the place is commonly called, Sault Ste. Marie. Here the river descends in a succession of rapids extending  $\frac{3}{4}$  of a mile, from 18 to 21 feet, the fall varying with the stage of the water in Lake Superior.

Ship canals have been constructed past the falls by the United States and the Canadian governments, so that now the lake is accessible to vessels from the Atlantic Ocean. The water of Lake Superior, remarkable for its coldness, purity, and transparency, is inhabited by many kinds of fish, among which are the delicious white fish and the gray trout.

**Suppuration**, a morbid process which gives rise to the formation of pus, one of the destructive terminations of the inflammatory action. Suppuration in the interior of the body usually terminates in the formation of an abscess; but in some cases the matter is diffused through the interstices of the part, and is termed diffuse inflammation.

**Supremacy, Papal**, the authority, partly spiritual and partly temporal, which the Pope, as Bishop of Rome and successor of St. Peter, claims to exercise over the clergy, and, through them, over the laity, of the whole world. The development of this supremacy dates from the time when Christianity became the State religion of the Roman empire under Constantine. Its influence was great in



England under the Norman kings, and reached its highest point in the reign of John (1199-1216), from which period it began to decline, and received its death blow from the Act of Supremacy, in the reign of Henry VIII.

**Supremacy, Royal**, the supremacy in the Church of England, as by law established, of the temporal power in all causes purely temporal, and in the temporal accidents of spiritual things. By an act of Henry VIII. the king was declared to be the "only supreme Head on earth of the Church of England," though it was expressly declared that he did not "pretend to take any power from the successors of the apostles that was given them by God." In the same year (1535) Fisher, Bishop of Rochester, and Sir Thomas More were beheaded for denying the royal claim. On the accession of Elizabeth the title was kept in the background; but the supremacy of the sovereign in all causes, as well ecclesiastical as civil, was asserted. The royal supremacy was one of the main causes of the civil war in the 17th century; it received a check at the revolution of 1688 which enforced toleration of Nonconformity, but in the latter half of the 19th century more than one clergyman was committed to prison for disobeying the ruling of the law courts in ecclesiastical matters.

**Supreme Court of the United States.** In the formation of the Constitution of the United States it was intended that the three general departments of the government should be of correlative rank and influence. And the decisions of the Supreme Court, especially those rendered since the Civil War, in the construction of the constitutional amendments which were made as a result of that war, have been of such fundamental and far reaching consequences that the value and importance of this tribunal in the United States system of government have been made more strikingly conspicuous than ever before. Its judgments, for example, in regard to civil rights, interstate commerce, prohibition liquor laws, the Mormon question, the right of Congress to authorize the use of paper money in time of peace, the legislation of Con-

gress in regard to the Southern States by so-called "force-bills," the relations of the States to the federal government, etc., have been of the highest importance, and their influence in the future will be almost incalculable. The Supreme Court, at its first session in 1790, consisted of a chief justice and five associates. By successive acts of Congress the number of associate justices was increased to six in 1807, to eight in 1837, and the statute now in force, passed in 1869, fixes the number at eight. The retirement of supreme justices at the age of 70 is not compulsory, but a mere personal privilege. This provision was originally enacted April 10, 1869. The United States Constitution expressly provides that the judges "shall hold their offices during good behavior," so that if they do not voluntarily take advantage of the foregoing provision and are not removed, they are entitled to exercise the duties of their office till death.

The Supreme Court is the judicial court of last resort in the Federal system of courts. The chief justice has a salary of \$25,000, and the associate justices receive \$20,000 each, and their compensation cannot be diminished during their continuance in office. The sessions are held in Washington, D. C., and any six justices constitute a quorum. Each judge of the court, moreover, must, at least once in every two years, attend a term in one of the nine circuit courts in those parts of the country where those courts are held. The judicial power of the Supreme Court and of the inferior federal courts extends to all cases in law and equity arising under the Constitution, the laws of the United States, and treaties made under their authority; to all cases affecting ambassadors, other public ministers, and consuls; to all cases of admiralty and maritime jurisdiction; to controversies to which the United States is a party, and to controversies between two or more States or between citizens of different States, etc.; but not to suits against one of the States by citizens of another State, or by citizens or subjects of any foreign State. The Supreme Court has original jurisdiction in cases affecting ambassadors, public ministers, and consuls, and when a State is a party;

but its chief jurisdiction is appellate. Thus it hears appeals from the circuit courts and from certain district courts having circuit court powers; in civil actions where the matter in dispute exceeds \$5,000, or in equity and maritime cases, \$2,000. But there are some cases, as, for example, in regard to patents and copyrights, revenue laws, and civil rights, where an appeal is allowed without regard to the value in dispute. Moreover, if decisions in the highest courts of the various States are in conflict with the Constitution, treaties, or laws of the United States, they may be appealed to the Supreme Court. No appeals from Territorial courts, from the Court of Claims, etc., are heard in this court.

**Surety**, in law, one who is bound with and for another who is primarily liable, and who is called the principal; one who enters into a bond or recognizance to answer for his payment of a debt, or for the performance of some act, and who, in case of the failure of the principal, is liable to pay the debt and damages; a bondsman, a bail.

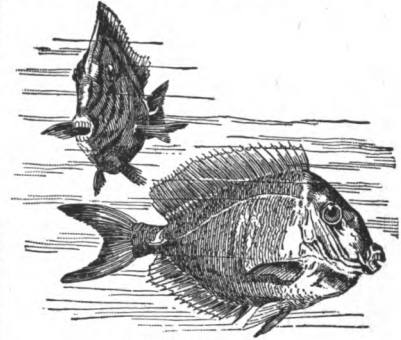
**Surface Grub**, a name applied to the larva or caterpillar of the great yellow underwing moth, attaining a length of an inch and a half, and of a pale-green color tinted with brown and spotted with black. The larva is destructive to vegetables. It appears commonly in hayfields in spring and summer. The moth itself is of a pale tawny color on the upper wings, and has the hind wings of an orange hue.

**Surf Duck**, or **Surf Scoter**, a species of duck, about the size of a mallard, frequent on the coasts of Labrador, Hudson Bay, and other parts of North America.

**Surgeon**, one who practises surgery; in a more limited sense, one who cures diseases or injuries of the body by operating manually upon the patient. In a more general sense, one whose occupation is to treat diseases or injuries by medical appliances, whether internal or external.

**Surgeon-fish**, a popular name for any species of the genus *Acanthurus*, from the sharp, erectile, lancet-shaped spine with which each side of the tail

is armed. In the early stages of their growth these fish are so different from the fully-developed individuals, that for some time the young fish were placed in a separate genus.



**SURGEON FISH.**

**Surgeon-general**, in the United States army, the chief of the medical department. In the British army, a surgeon ranking next below the chief of the medical department.

**Surmullet**, a name of fishes, allied to the perches, and often called red mullets. They have two dorsal fins with a wide interval between them, the first being spinous, and two long barbels hanging from the lower jaw. The common red mullet of the Mediterranean is about 12 inches long, esteemed very delicious food, and was much prized by the Romans.

**Surplice**, the outer garment of an officiating priest, deacon, or chorister in the Church of England and the Roman Catholic Church, worn over their other dress during the performance of religious services. It is a loose, flowing vestment of white linen, generally reaching almost to the feet, with broad, full sleeves. It differs from the alb in being fuller, and in having no girdle, nor embroidery at the foot.

**Surplus**, **The**, the money which annually remains in the Treasury of the United States after the officers of the treasury department have collected the taxes laid on the people by the laws of Congress and have paid all the expenses and obligations of the government, except principal of the

interest-bearing debt. The disposition of this surplus has always been an important question, especially when there was no public debt outstanding at the time, or when such debt had not matured, and was, therefore, not redeemable. In 1835 the debt of the United States was \$37,733, but the obligations had not been presented for payment. The surplus accumulated and in 1836 amounted to over \$40,000,000. It was decided by Congress to apportion this out to those States who would authorize their treasurers to receive the amounts and agree to refund them when demanded. The sum of \$5,000,000 was reserved by the government, and the remainder, \$37,468,859, was to be paid in four installments. The first three were paid to all but the few States that had refused to accept it on the conditions proposed. The fourth installment was not paid on account of the financial depression of 1837. The return of these loans to the States has never been demanded by the general government.

Another large surplus accumulated in 1852, which was used in the payment of government obligations. The outbreak of the Civil War prevented any surplus for some years. During a period of 26 years, the surplus was smallest in 1874, being \$2,344,882.30, and greatest in 1882, being \$145,543,810.71. In 1887 it amounted to \$103,471,097.69; in 1892 to \$26,838,541; in 1915 to \$40,898,894.97.

**Surrey, Henry Howard, Earl of**, an English poet. He succeeded to the courtesy title of Earl of Surrey when his father became 2d Duke of Norfolk in 1524. The Howards held an eminent position at the court of Henry VIII., and Surrey's cousin, Catherine Howard, became the king's fifth wife. Surrey was one of the leaders of the early poetic movement under Henry VIII. Most of his poems were translations or adaptations of Italian originals. His translations of the second and fourth books of the *Æneid* are the first attempt at blank verse in the English language. Shortly before Henry's death Surrey and his father were suspected of aiming at the throne, and were arrested and lodged in the Tower, and Surrey was tried, condemned, and executed on Tower Hill, Jan. 19, 1547.

**Surveying**, the act or art of determining the boundaries, form, area, position, contour, etc., of any portion of the earth's surface, tract of country, coast, etc., by means of measurements taken on the spot; the art of determining the form, area, surface, contour, etc., of any portion of the earth's surface, and delineating it accurately on a map or plan. Land surveying is the art of applying the principles of geometry and trigonometry to the measurement of land. Geodesic surveying comprises all the operations of surveying carried on under the supposition that the earth is spheroidal. It embraces marine surveying.

Marine or hydrographical surveying ascertains the forms of coast lines, harbors, etc., and of objects on the shore, the entrances to harbors, channels, their depth, width, etc., the position of shoals, the depth of water thereon; and it embraces all the operations necessary to a complete determination of the contour of the bottom of a harbor or other sheet of water. Mining surveying may be either for the purpose of determining the situation and position of the shafts, galleries, and other underground excavations of a mine already in existence; or it may be for determining the proper positions for the shafts, galleries, etc., of a mine not yet opened. Railway surveying is a comprehensive term, embracing surveys intended to ascertain the best line of communication between two given points; it also includes all surveys for the construction of aqueducts for the supply of water to towns, etc. Topographical surveying embraces all the operations incident to finding the contour of a portion of the earth's surface, and the various methods of representing it upon a plane surface.

**Susa**, one of the capitals of ancient Persia; was situated on the Choaspes, and has now been identified with the extensive ruins on the left bank of the Kerkha, about 250 miles S. E. of Bagdad. It had a circumference of 120 stadia, and like Babylon was built of burnt bricks cemented with asphalt. It was without walls, but its citadel, containing the treasury and mausoleum of the Persian kings, was strongly fortified. After Alexander and his successors had fixed

their court at Babylon Susa declined in importance, though when besieged by Antigonus in 315 B. C. it was still one of the chief cities of Persia, and even as late as the middle of the 7th century A. D. it offered under Hormuzan an obstinate resistance to the Saracens; but by the 13th century it had become a heap of ruins.

**Suspension**, in English and Roman canon law, a censure inflicted on a clerk or priest in orders, for remedial purposes, the effect of which is to take away from him, for a fixed time, or till he repents and makes satisfaction, the exercise of his sacred functions in his office or benefice. In rhetoric, a keeping of the hearer in doubt and in attentive expectation of what is to follow, or what is to be the inference or conclusion from the arguments or observations. Pleas in suspension, in law, those pleas which show some matter of temporary incapacity to proceed with the action or suit. Points of suspension, in mechanics, the points, as in the axis of a beam or balance, at which the weights act or from which they are suspended. Suspension of arms, a short truce or cessation of operations agreed on by the commanders of the opposing forces, as for the burying of the dead, making proposals for surrender, peace, etc.

**Suspension Railway**, a railway in which the carriage is suspended from an elevated track, one carriage on each side of a single track, so as to balance, or suspended between two tracks. There is an elevated single-track railway in Algeria, where 60 miles of suspension railway are at work, employed chiefly in carrying esparto.

**Susquehanna**, a river of the United States, formed by two branches, an eastern or northern branch, 250 miles long from Lake Otsego in New York, and a western branch, 200 miles from the western slope of the Alleghanies, which unite at Northumberland in Pennsylvania. The united stream flows south and south-east, and after a course of 150 miles reaches the head of Chesapeake Bay at Havre de Grace, Maryland; nowhere navigable to any extent, save in the spring.

**Sutro, Adolph Heinrich Joseph**, an American mining engineer;

born in Aix-la-Chapelle, Prussia, April 29, 1830; came to the United States in 1850 and settled in San Francisco, Cal. There he engaged in business till 1860, when he conceived the plan of the great "Sutro tunnel," as a means of developing the Comstock mine in Nevada. He interested capitalists in the project and work was begun on the tunnel in 1869. His contract with the mine-owners called for \$2.00 royalty on every ton of ore taken from the mines, and when the work was completed in 1879 he was paid about \$15,000. He sold out his interest in the tunnel; went to San Francisco, invested in real estate, and soon became one of the wealthiest men on the Pacific slope. He was a donor of large sums of money to public institutions; founder of the Sutro Library of San Francisco and mayor of that city in 1894. After his death there, Aug. 8, 1898, his will, in which he bequeathed nearly his whole fortune to the city, was contested and broken.

**Sutro, Florence Clinton**, an American musician; born in England; was graduated at the Grand Conservatory of Music in New York with the degree of Mus. D., being the first woman in the United States to receive that degree, and at the Law School of the University of New York. She was a member of numerous literary, musical, and social societies; honorary president of the Grand Conservatory Alumnae; president of the Hospital for Crippled Children, and prominent as a writer for the advancement of women as composers and musicians. She founded the National Federation of Musical Clubs and Societies in 1898. She died in 1906.

**Sutton, Rhoades Stansbury**, an American physician; born in Indiana, Pa., July 8, 1841; was graduated at Washington and Jefferson College in 1862, and at the Medical Department of the University of Pennsylvania in 1865. He was major of volunteers and surgeon in the army during the Spanish-American War. His publications include many contributions on surgery and medicine to technical periodicals. He died in 1906.

**Suture**, in ordinary language, the act of sewing, the line along which

two things are joined, united, or sewed together, so as to form a seam, or something resembling a seam. Technically, in anatomy, the immovable junction of two parts by their margins; as, the sutures of the skull, i. e., the lines of junction of the bones of which the skull is composed. Various types of suture exist, as the serrated or dentated suture, the squamous or scaly suture, and the harmonic suture or harmonia. Arranged according to their situation, there are coronal, frontal, fronto-parietal, occipito-parietal and many other sutures.

**Suvoroff, or Suwarof, Alexei Vassilievitch, Count, Prince Italiski**, a Russian field-marshal; born in 1729; died in 1800. In his 17th year he entered the service as a common soldier. He served in the war against Sweden, in the Seven Years' War, in Poland, and against the Turks, becoming general of division in 1773. In 1783 he reduced the Kuban Tartars under the Russian yoke. In 1787, he conducted the defence of Kinburn to a successful issue; and in 1789 he gained the dignity of count by his great victory on the banks of the Rymnik, over the Turks. For his successful campaign against Poland, he received a field-marshal's bâton and a Polish estate. The last and most celebrated of his services was his campaign in Italy in 1799, when his brilliant victories at Piacenza, Novi, etc., drove the French from all the towns and fortresses of Upper Italy, and he was rewarded with the title of Prince Italiski.

**Svastika**, a religious symbol used by early races of Aryan stock from Scandinavia to Persia and India. It consists of a Greek cross, either enclosed in a circle the circumference of which passes through its extremities or with its arms bent back, and was intended to represent the sun, being found invariably associated with the worship of Aryan sun gods (Apollo, Odin). Similar devices occur in the monumental remains of the ancient Mexicans and Peruvians, and on objects exhumed from the prehistoric burial mounds of the United States.

**Swallow**, in ornithology, any one of the numerous passerine birds. In the United States the best known spe-

cies are: the barn swallow; the cliff, eaves, or chimney swallow; the white bellied or tree swallow, and the bank swallow. The species usually described by naturalists as the type of the family is *Hirundo rustica*, a well-known European visitor, whose arrival from Africa (usually about the middle of April) is eagerly looked for as a sign of approaching summer. Swallows usually arrive in pairs—a male and a female—though several pairs often form a small flight; but if a single bird is seen to arrive, there is a strong presumption that it has lost its mate. They return with unfailing regularity to their old haunts, and in May commence building their nests.

**Swammerdam, John**, a Dutch naturalist; born in Amsterdam, Holland, Feb. 12, 1637; was destined for the Church, but embraced the profession of medicine. He was devoted especially to the study of insects; and his "General History of Insects," and other works laid the foundations of the modern science of entomology. He died in Amsterdam, Feb. 15, 1680.

**Swamp Angel, The**, an 8-inch Parrott gun, so named by the Federal soldiers. It was mounted on a battery constructed on piles driven into the swamp near Charleston, S. C., and was used in the siege of that city. It burst Aug. 22, 1863, and was sent with a lot of old metal to Trenton, N. J., to be melted up. By some means the gun was recognized, was rescued from its impending fate, and set on a granite base on the corner of Perry and Clinton streets in the city of Trenton.

**Swamp Deer**, is about four feet in height, rich light yellow in color, and congregates in large herds in moist situations. The antlers are large, with a long beam which branches into an anterior continuation of the main portion, and a smaller posterior tyne which is bifurcated.

**Swamp Hickory**, a North American tree with small ovate fruits, the rind of which remains permanently fleshy. The kernel is very bitter; hence the tree is sometimes called bitter nut.

**Swan**, in ornithology, any individual of the genus *Cygnus*. The swans



form a sharply-defined group; the body is elongated, the neck very long, head moderate; beak about as long as head; legs short, and placed far back. On the under surface the plumage is thick and fur-like; on the upper side the feathers are broad, but both above and below the body is thickly covered with down. Their short legs render their movements on land awkward and ungainly, but in the water these birds are graceful to a proverb. Their food consists of vegetable substances and weeds, their long necks enabling them to dip below the surface and to reach their food at considerable depths.

**Swan, James**, an American military officer; born in Fifehire, Scotland, in 1754, came to Boston in boyhood; was one of the noted "tea-party"; took part in the expedition that drove the British fleet out of Boston harbor; aide-de-camp to General Warren at Bunker Hill; adjutant-general of Massachusetts; acquired a fortune in Paris; returned to Boston in 1795, and became noted for his charities, re-engaged in business in Europe, and was imprisoned in Paris in 1815-30 as the result of a law suit. He died in Paris, March 18, 1831.

**Swan, Joseph Rockwell**, an American jurist; born in Westernville, N. Y., Dec. 28, 1802; settled in Columbus, O., in 1824, and became judge of the Supreme Court in 1854. In 1859 he rendered his most important decision. The United States District Court in Ohio had sentenced a prisoner for violating the Fugitive-Slave Law. Under a writ of habeas corpus the Supreme Court of the State sought to set aside the sentence, but it was sustained by Judge Swan, who declared that the State could not reverse the decisions of the United States courts. His publications include: "Statutes of Ohio"; "Swan's Pleadings and Practice"; "Commentaries on Pleadings under the Ohio Code," etc. He died in Columbus, O., Dec. 18, 1884.

**Swank, James Moore**, an American statistician; born in Westmoreland co., Pa., July 12, 1832; in 1871-1872 he was chief clerk of the United States Department of Agriculture. He early became a strong advocate of the

policy of protective tariff. His publications include "History of the Department of Agriculture"; "Iron Making and Coal Mining in Pennsylvania"; "History of the Manufacture of Iron in all Ages"; and many tariff tracts. He died June 21, 1914.

**Swayne, Noah Haynes**, an American jurist; born in Culpeper co., Va., Dec. 7, 1804; settled in Coshoc-ton, O., in 1825; in 1829 he became a Democratic member of the Ohio Legislature. He was United States district attorney for Ohio in 1831-1841. He often appeared as counsel in fugitive-slave cases and on account of his anti-slavery views joined the Republican party on its formation. He was an associate justice of the United States Supreme Court in 1862-1881. In the latter year he resigned owing to advanced age. He died in New York city, June 8, 1884.

**Sweating System**, the system by which sub-contractors undertake to do work in their own houses or small workshops, and employ others to do it, making a profit for themselves by the difference between the contract prices and the wages they pay their assistants. Laws have recently been enacted both in England and the United States to regulate the system, and providing penalties for the employment of children and others in overcrowded and ill-ventilated "sweat shops."

**Sweden** (Sverige), a kingdom in Norway, Europe, formerly comprising with Norway and Lapland the whole of the Scandinavian peninsula, of which it forms the E., S., and most important portion; having N. E. Russian Finland; E. and S. the Gulf of Bothnia and the Baltic; S. W. the Sound, Cattegat, and Skagerrack; and W. and N. Norway, from which it is for the most part divided by the great mountain chain of Scandinavia. Length N. to S. 950 miles; average breadth about 190 miles, area 172,963 square miles, pop. (1927) 6,087,923. Capital, Stockholm; pop. (1928) 464,699.

Sweden is divided into three principal regions; Gothland (Gothia) in the S.; Sweden proper, occupying the center; and Norland (by far the largest part), comprising the remainder.

## Sweden

These three regions are again subdivided into 24 lars, or districts. Sweden is mountainous in the W., but, in general, flat; and it is remarkable that along the whole road from Gottenburg in the W., to Stockholm in the E., there is not a single acclivity of consequence till within a few miles of the latter.

The climate is less severe than might be expected in so high a latitude. The summers are hot, and spring is almost unknown. In the N., snow covers the ground for five or six months in the year; and the W. coasts are milder and more humid than the E.

The domestic animals are the same as those of North America. The others are hares and foxes, beavers, wolves and, in the cold provinces of the N., bears, the leming and the reindeer. Water fowl are abundant and the mosquitoes are as troublesome as they are in tropical countries.

Only about a fiftieth part of the country is cultivated. Agriculture is in a very backward state, but has been recently much improved. Apple, pear, and cherry trees grow but languidly; while berries of many different kinds are produced spontaneously and spread luxuriantly. Wheat succeeds only in the S. provinces; oats are raised more generally, and in larger quantities; but rye and barley are the kinds of grain most frequently met with.

Sweden's government is a constitutional monarchy. The King of Sweden, who was also King of Norway, must be a member of the Lutheran Church. His person is inviolable. He has the right to declare war and make peace, and grant pardon to condemned criminals. He nominates to all appointments, both military and civil; concludes foreign treaties, and has a right to preside in the supreme court of justice. The king has an absolute veto upon any decrees of the Diet, and possesses legislative power in matters of provincial administration and police. In all other respects, the fountain of law is the Diet. This Diet, or Congress of the realm, consists of two chambers, or estates, both elected by the people, but representing different interests.

The two kingdoms, Gothland and

## Swedenborg

Svealand, of which Sweden once consisted, were united in the 13th century by the failure of the royal line in the former. In 1397 by the treaty of Calmar, Sweden became subject to Margaret of Denmark, who has been styled the Semiramis of the North, and who joined the three kingdoms in one. Gustavus Vasa asserted the independence of Sweden and ascended the throne in 1521. He bequeathed the crown to his posterity, who continued to reign, and in general with distinction; but most of them, and in particular, Gustavus Adolphus, his daughter Christina, Charles XII., and Gustavus III., discovered a romantic spirit approaching, in the case of Charles XII., to a degree of infatuation. This dynasty ended in a prince (Gustavus IV.) who had all the eccentricity and hardly any of the talents of his predecessors. In 1809 this last monarch engaging in undertakings totally beyond the resources of his people, was deposed; and next year Marshal Bernadotte of France was elected crown-prince, and in 1818 as Charles John XIV., ascended the throne. In 1814 Norway was annexed to Sweden. On June 7, 1905, the Norwegian Storting dissolved the union and Sweden recognized the independence of Norway. Oscar II. died Dec. 8, 1907, and was succeeded by his son, Gustavus V. At the outbreak of the World War Sweden proclaimed neutrality; but on Sept. 13, 1917, the United States made public a document showing that the Swedish Chargé d' Affaires at Mexico City had been actively aiding Germany.

**Swedenborg, Emanuel**, founder of the Church of the New Jerusalem, and one of the most distinguished men of science of the 18th century; born in Stockholm, Sweden, Jan. 29, 1688. He was carefully educated in the principles of the Lutheran Church. After pursuing his studies and taking the degree of Ph. D. at Upsala, he went on his travels in 1710, and visited the universities of England, Holland, France, and Germany. He had in the previous year achieved a great engineering feat, in the transport, over a mountain district, of several galleys and boats for service at the siege of Frederickshall. He continued his scientific studies with an ardor that

## Swedish Turnip

placed him in the first rank of European philosophers, till the year 1743, when, as he himself affirms, a new era of his life commenced, and he was permitted to hold intercourse with the inhabitants of the invisible world. In 1747, he resigned his office in the mining college, retired from public life, and spending his time alternately in Sweden and in England, devoted himself to the publication of his theological works. The believers in his doctrines are now become a numerous body. Among his very numerous works are: "Philosophical and Mineralogical Works"; "Oeconomia Regni Animalis" (Economy of the Animal Kingdom); and "Regnum Animale" (The Animal Kingdom); "Arcana Coelestia" (The Secrets of Heaven); "On Heaven and Hell," "On Conjugal Love" and the "True Christian Religion." Died in London, England, March 29, 1772.

**Swedish Turnip**, a kind of turnip, introduced originally from Sweden. The bulb is elongated, the leaves glaucous, the inside either white or, more generally, yellow, the quality not being affected by the variation of color. It is very hardy, not generally suffering injury from intense cold.

**Sweeney, Thomas William**, an American military officer; born in Cork, Ireland, Dec. 25, 1820; settled in the United States in 1832. In 1846 he was made 2d lieutenant in the 1st New York Volunteers; took part in the bombardment of Vera Cruz and in the assault on Churubusco. After the Mexican War he was commissioned 2d lieutenant in the 2d United States Infantry, and was on duty in California and at other posts in the West, where he was often engaged against the hostile Indians. In January, 1861, he was promoted captain and assigned to the command of the arsenal in St. Louis. He became a Brigadier-General of volunteers in May, 1861, and later colonel of the 52d Illinois Volunteers, with which regiment he took part in the capture of Fort Donelson. During the first day of the action at Shiloh he held the key of the Union position. He was promoted major of the 16th United States Infantry in October, 1863. He won his greatest distinction on July

## Sweet Chestnut

22, 1864, in the engagement before Atlanta. He there routed the enemy with great slaughter, took 900 prisoners, and four battle flags. He was retired in May, 1870, with the rank of Brigadier-General U. S. A. He died in Astoria, L. I., April 10, 1892.

**Sweet, Alexander Edwin**, an American journalist; born in St. John, N. B., March 28, 1841. He served in the Confederate army in the Civil War; was editor of the San Antonio (Texas) "Herald," and of "Texas Siftings" from 1881. Died in San Antonio, Tex., May 20, 1901.

**Sweet, Benjamin Jeffrey**, an American military officer; born in Kirkland, N. Y., April 24, 1832; settled with his parents in Stockbridge, Wis., in 1838. At the outbreak of the Civil War he recruited the 21st and 22d Wisconsin regiments, becoming colonel of the former. For his services while in command at Camp Douglas, Chicago, in preventing an outbreak of the Confederate prisoners, Sweet was promoted Brigadier-General of volunteers. In January, 1872, he was made 1st Deputy Commissioner of Internal Revenue and removed to Washington, D. C., where he died Jan. 1, 1874.

**Sweet Briar**, or **Sweet Brier**, naturalized in the United States, and grows wild, but is often planted in hedges and gardens on account of the sweet balsamic smell of its small leaves and flowers. It is also called the eglantine.

**Sweet Chestnut**, a tree with oblong leaves, and clusters of minute, pale greenish-yellow flowers in spikes. The fruit is a prickly husk, with one or more nuts, each with one large seed. It grows wild in America and in the S. of Europe. On the slopes of Etna, where there are forests of it, there grow some old trees with trunks of enormous girth. The chestnuts of commerce are derived chiefly from the cultivated varieties of the tree, and are larger and sweeter than the wild fruit. The nuts are consumed as an article of daily food in the S. of Europe, and in parts of France are served up for breakfast, boiled in milk. The timber is extensively used in America, especially for the inside finishing of houses, furniture, etc.

**Sweetflag**, a plant, also called sweetrush, found in marshy places throughout the Northern Hemisphere. The stem bears a lateral, dense, greenish spike of flowers; the root is long, cylindrical, and knotted. The root has a strong aromatic odor, and a warm, pungent, bitterish taste, and has been employed in medicine since the time of Hippocrates. It is also used by confectioners as a candy, and by perfumers in the preparation of aromatic vinegar, hair powder, etc.

**Sweet Gum**, a North American tree about 60 feet high with apetalous flowers. The wood is fine-grained, and well adapted for furniture; the fragrant gum exuding from it when incisions are made in its bark constitutes liquidambar.

**Sweet Pea**, a familiar garden annual plant. It is a native of Sicily and other parts of the S. of Europe, and has been cultivated for its beautiful and fragrant flowers in American gardens for about 100 years. The varieties are very numerous, distinguished chiefly by the different shades of color of the flowers. It is cultivated as a hardy annual, and is so hardy that it may be sown in autumn and will not only withstand the cold of winter in all but the coldest districts, but will bloom earlier and better than when sown only in spring. Sowing in the latter season is, however, necessary to provide prolongation of bloom.

**Sweet Potato**, a genus of plants with stems five or six feet long. The leaves are five or six inches long, heart-shaped at the base; the flowers pale purple, closely resembling those of the common convolvulus or bindweed. The roots grow to a great size—to as much as 50 pounds weight, according to some authorities, in Java, but the ordinary average is from 3 to 12 pounds. In the calendar year 1928, the sweet potato acreage was 931,000; the production, 93,928,000 bushels and the value \$77,520,000. Texas led with 11,970,000 bushels, followed by Georgia with 10,560,000, North Carolina with 10,146,000.

**Sweet William**, in botany and horticulture a plant with leaves lanceolate and nerved; the flowers are aggregated in bundles; petals bearded,

whence the book name of bearded pink. It may be single or double; the petals dark purple, red, speckled, or white.

**Swensson, Carl Aaron**, an American educator; born in Sugar Grove, Pa., June 25, 1857; was graduated at Augustana College, Rock Island, Ill., in 1877, and at the Augustana Theological Seminary in 1879. Subsequently he was pastor of the Bethany Lutheran Church; secretary and later president of the General Council of the Lutheran Church of North America; member of the Kansas Legislature; and delegate-at-large to the Republican National Convention at St. Louis, in 1896. He was the author and compiler of several hymn books. He died in 1904.

**Swett, John**, an American educator; born in Pittsfield, N. H., July 31, 1830; was educated at the Pembroke (N. H.) Academy; and subsequently engaged in teaching. He was State superintendent of education of California in 1863-68; and city superintendent of the San Francisco schools in 1891-94. Among his numerous publications are "History of the Public-School System of California"; "American Public Schools"; "School Elocution," etc. He died Aug. 22, 1913.

**Swift**, a bird of the genus *Hepialces*, somewhat resembling the swallow and the humming bird, but differing from them in general structure. The European types comprise the Golden, Common, Beautiful, and the Evening Swifts. The Swift's scream is very different from the twittering of the swallow. Its weight is most disproportionately small to its extent of wing, the former being scarcely an ounce, the latter 18 inches, the length of the body being about 8 inches. Its color is a somber or sooty black, a whitish patch appearing beneath the chin. It builds in holes in the roofs of houses, in towers, or in hollow trees. A common North American swift is the so-called chimney swallow, which builds its nest in chimneys.

**Swift, Jonathan**, the greatest of English satirists; born in Dublin, Ireland, Nov. 30, 1667. He was the posthumous son of Jonathan Swift,

## Swift

an Englishman, steward of the Irish inns of court, and was educated at Kilkenny and at Trinity College, Dublin. In 1701 he took his doctor's degree, and in 1704 he published anonymously his famous "Tale of a Tub," to which was appended the "Battle of the Books." In 1708 appeared, among other things, an attack on astrology under the title of "Predictions for the Year 1708, by Isaac Bickerstaff, Esq.," and in 1709 a "Project for the Advance of Religion," dedicated to Lady Berkeley, the only work to which he ever put his name. His "Proposal for the Universal Use of Irish Manufactures" (1720), and his celebrated "Drapier's Letters" (1723), made him the idol of the Irish people. His famous "Gulliver's Travels" appeared in 1726. He died in Dublin Oct. 19, 1745, bequeathing the greatest part of his fortune to a hospital for lunatics and idiots. As a writer Swift has, perhaps, never been exceeded in grave irony, which he veils with an air of serious simplicity, admirably calculated to set it off. He abounds in ludicrous ideas, which often deviate, both in his poetry and prose, into very unpardonable grossness. His style forms a fine example of easy familiarity.

**Swift, Lewis**, an American astronomer; born in Clarkson, N. Y., Feb. 29, 1820. He became interested in astronomy, built and set up his own telescope in Rochester, N. Y., and began to make observations. For years he searched the heavens for comets, and discovered the notable one of 1862. In 1869 he observed a total solar eclipse and secured valuable results. Two years later he found another comet, and in 1877-1879 discovered other comets, for which he was three times awarded the court prize and received a gold medal from the Imperial Academy of Sciences in Vienna. He died Jan. 5, 1913.

**Swinburne, Algernon Charles**, an English poet and essayist, son of Admiral Charles Henry Swinburne; born in London, England, 1837. His first productions were "Queen Mother" and "Rosamund" (1861). They were followed by two tragedies: "Atalanta in Calydon," and "Chastelard," and by "Poems and Ballads," re-

## Switzerland

printed as "Laus Veneris." He also wrote "A Study of Ben Jonson"; "Astrophel, and Other Poems"; "Studies in Prose and Poetry"; "The Tale of Balen"; and "Rosamund." Died April 10, 1909.

**Swinton, John**, an American journalist; born in Salton, Scotland, Dec. 12, 1830; early learned the printer's trade; came to Canada about 1853 and afterward to New York city; was chief of editorial staff of the "Times" from 1860 through the war; then with Horace Greeley on the "Tribune" till about 1874; then chief of staff of the "Sun" till 1883, when he resigned to start "John Swinton's Paper," conducting it till 1887. He wrote "The New Issue"; "John Swinton's Travels"; etc. He died in Brooklyn, N. Y., Dec. 15, 1901. He was a man of remarkable courage in the avowal of an unpopular conviction, and esteemed even by those who detested his views.

**Swinton, William**, an American educator, brother of John; born in Salton, Scotland, April 23, 1833. During the Civil War he was war correspondent of the New York "Times"; from 1869 to 1872 he was Professor of English Language and Literature in the University of California. After 1874 he devoted his time to the preparation of educational works. His writings include: "Rambles Among Words," and "Twelve Decisive Battles of the War." He died in New York city, Oct. 25, 1892.

**Switzerland**, a federal republic of Central Europe; bounded N. by Alsace-Lorraine and Baden, from which it is separated for the most part by the Rhine; N. E. by Wurtemberg and Bavaria, from which it is separated by the Lake of Constance; E. by Austria and the principality of Liechtenstein, from which it is separated by the Rhine and the Grisons Alps; S. by Italy and France, from which it is separated by the Alps and the Lake of Geneva; and W. and N. W. by France, from which it is separated in part by the Jura Mountains, the Doubs river and Lake Geneva; greatest length 210 miles; greatest breadth 126 miles. It is composed of 22 cantons, three of which are divided into two parts with separate governments



united successively for federal purposes from 1291 to 1815. The constitution of 1848, revised May 29, 1874, transformed the federation of States into a federal State. The largest cities are Geneva, Zurich, Basel, and Berne, the last being the federal capital; total area, 15,976 square miles; pop. (1927 Est.) 3,987,000.

The characteristic physical features of Switzerland are its lofty mountain ranges, enormous glaciers, magnificent lakes, and romantic valleys. The loftiest mountain chains belong to the Alps, and are situated chiefly in the South. The central nucleus is Mount St. Gothard, which unites the principal watersheds of Europe, and sends its waters into four large basins, N. by the Rhine to the German Ocean, S. W. by the Rhone to the Mediterranean, S. E. by the Po to the Adriatic, and E. by the Danube to the Black Sea. In like manner it forms a kind of starting point for the loftiest ranges of the Alps—the Helvetic or Lepontine Alps to which it belongs itself; the Pennine Alps which include Mont Blanc, the culminating point of Europe, beyond the Swiss frontiers in Savoy; and the Rhaetian Alps which stretch E. and N. E. across the canton of Grisons into Tyrol. Besides the Alps, properly so called, the only range deserving of notice is that of the Jura, which is linked to the Alps by the small range, the Jorat.

Owing to differences of elevation the climate is extremely variable even in the same localities. Owing to the same cause, few countries in Europe even of larger extent can boast of a more varied vegetation than Switzerland. In regard to vegetation it has been divided into seven regions. The characteristic product of the first is the vine, which grows up to 1,700 or 1,800 feet above sea-level. The next is the hilly or lower mountain region, rising to the height of 2,800 feet, and characterized by the luxuriance of its walnut trees, with good crops of spelt and excellent meadows. The third or upper mountain region, which has its limit at 4,000 feet, produces forest timber, more especially beech, and has good crops of barley and oats, and excellent pastures. Above this, and up to the height of 5,500 feet, is the fourth or subalpine region, dis-

tinguished by its pine forests and maples; here no regular crops are grown. The fifth or lower alpine region, terminating at 6,500 feet, is the proper region of alpine pastures. In the sixth or upper alpine region the vegetation becomes more and more stunted, and the variation of the seasons is lost. The seventh or last region is that of perpetual snow. Many parts even of the lower regions of Switzerland are of a stony, sterile nature, but on every side the effects of persevering industry are apparent, and no spot that can be turned to good account is left unoccupied. Of the total area, 22.6 per cent. is unproductive; of the productive area nearly 53.2 per cent. is under grass and meadows; 28.2 per cent. under forest; 18.7 per cent. under fruit; and 16.4 per cent. under crops and gardens. The chief crops are wheat, spelt, rye, oats, and potatoes.

Of the population about 40 per cent. are dependent on agriculture, and about 34 per cent. on the manufacturing industry. Switzerland is thus mainly an agricultural and manufacturing country. The system of peasant proprietorship prevails largely, it being estimated that there are nearly 300,000 peasant proprietors. The principal manufactures are cotton, silk, embroidery, watches and jewelry. Geneva is the chief seat of the watch industry, Basel of the silk industry, and St. Gallen of embroidery.

According to the constitution of 1874 there is absolute liberty of conscience and of creed. About 59 per cent. of the inhabitants belong to the Protestant Church, and about 41 per cent. to the Roman Catholic Church. Primary education is secular and compulsory throughout the confederation.

The cantons of Switzerland are united together as a federal republic for mutual defense, but retain their individual independence in regard to all matters of internal administration. The legislative power of the confederation belongs to a federal assembly, and the executive power to a federal council.

The Swiss are a mixed people in race and language. German, French, Italian, and a corrupt kind of Latin called Rhaetian or Roumansch, are spoken in different parts.

## Sword

**Sword**, a weapon of offense consisting of a blade fitted into a hilt or handle, with a guard, the blade being formed to cut or to pierce, generally to do both. It is the most highly honored of all weapons, a symbol of military dignity and authority; and it is the instrument with which the monarch confers knightly honors. Its forms and modifications, and the names under which, in different shapes, it has been known in different lands and in successive ages, are beyond computation.

**Swordbill**, a popular name for any individual of the humming bird genus, *Docimastes*. The bill which exceeds in length the body of the bird, is a character by which this hum-



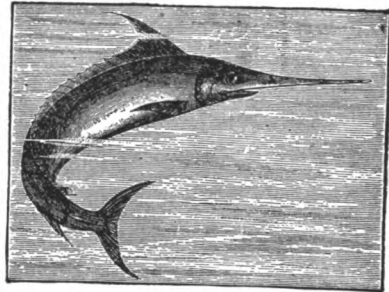
SWORDBILL.

ming bird may be distinguished at the first glance. Its use is to reach the insects on which the bird feeds at the bottom of long tubular flowers. One species is known, an inhabitant of Colombia, Ecuador, and Peru.

**Swordfish**, in astronomy, the constellation *Dorado*. In ichthyology, a popular name for any individual of the *Xiphiidæ*. They are pelagic fishes, widely distributed in tropical and subtropical seas, and are extremely strong and swift. Their popular name is derived from their formidable sword-like weapon, formed by the coalescence and

## Sydenham

prolongation of the maxillary and intermaxillary bones beyond the lower jaw; it is very hard and strong, and capable of inflicting terrible wounds.



SWORDFISH.

**Sycamore**, an umbrageous tree, 40 to 60 feet high; with spreading branches; large, five-lobed, coarsely and unequally serrate leaves. It flowers in May and June. The wood is used for bowls, trenchers, and other turnery. The sap is sacchariferous.

**Sycamore**, a tree of the genus *Ficus*, the sycomore of Scripture, a kind of fig tree. It is very common in Palestine, Arabia, and Egypt, growing thick and to a great height, and though the grain is coarse, much used in building and very durable. Its wide-spreading branches afford a grateful shade in those hot climates, and its fruit which is produced in clusters on the trunk and the old limbs, is sweet and delicate.

**Sydenham, Thomas**, an English physician; born in 1624. As licentiate of the College of Physicians, he published his "Method of Curing Fevers" in 1666; and 10 years after took his M. D. degree at Pembroke Hall, Cambridge. In 1668 he published a second edition of his book on fevers, adding to it a chapter on plague, with a fine poem in Latin elegiacs addressed to him by Locke. A third and enlarged edition, entitled "Medical Observations," appeared in 1676. In 1680 he published two "Letters in Response," the one "On Epidemics," and the other on the "Lues Venera." His "Epistolary Dissertation" on con-

fluent smallpox and hysteria was followed by his yet more famous "Treatise on Podagra." Died in 1689.

**Sydney**, town, port of entry, and former capital of Cape Breton Colony, Nova Scotia; on Cape Breton island; 200 miles N. E. of Halifax; has one of the finest and safest harbors on the Atlantic coast, large iron and steel works, and extensive shipments of coal, iron, and steel; contains a County Academy, Insane Asylum, and Convent. Pop. (1930) 22,545.

**Sydney**, the capital of New South Wales, picturesquely situated on the S. shore of Port Jackson, the shore line being deeply indented by capacious bays or inlets which form harbors in themselves, and are lined with wharves, quays, and warehouses. Some of the older streets are narrow and crooked, bearing a striking resemblance to those of an English town; but the more modern streets rank high in order of architectural merit. The steam tramway system is extended to all parts of the suburbs, and water communication between the city and its transmarine suburbs, Balmain, North Shore, Manly Beach, etc., is maintained by numerous steam ferries. The entrance from the Pacific Ocean to Port Jackson, about 4 miles N. E. of Sydney, is 1 mile in width, and is strongly fortified; the bay itself is about 10 miles in length and 3 in average breadth; it is well sheltered, and has a depth of water sufficient to float the largest vessels. Besides wharves and quays there are dry docks and other accommodation for shipping, and the trade of the port is very large. The principal exports are wool, tallow, hides, preserved meat, tin, copper, etc.; the imports, grain, tea, coffee, sugar, wine, and spirits, ironware and machinery, cotton and woollen goods, wearing apparel, furniture, etc. Sydney was founded in 1788, and was named in honor of Viscount Sydney, the colonial secretary. It was incorporated in 1842. The discovery of gold in the colony in 1851 gave an immense impetus to its progress. Pop. (1921) including suburbs, 905,947.

**Sykes, George**, an American military officer; born in Dover, Del., Oct. 9, 1822; was graduated at the United States Military Academy in 1842; and during the war with Mexico took

part at the actions of Monterey, Vera Cruz, Cerro Gordo, Contreras, Churubusco, and the siege and surrender of the City of Mexico. In May, 1861, he was promoted major of the 14th Infantry, and in September of the same year appointed Brigadier-General of volunteers. Later he won distinction at Gaines' Mills, and in the several subsequent operations of the Army of the Potomac; was promoted Major-General of volunteers in November, 1862; took part in the battles of Chancellorsville and commanded the 5th Army Corps during the battle of Gettysburg. At the close of the war he was brevetted Major-General U. S. A. for gallantry in service during the war. He was promoted colonel of the 20th United States Infantry in January, 1868. He died in Brownsville, Tex., Feb. 9, 1880, while in command of Fort Brown. His remains were removed to the West Point cemetery at the expense of Congress and a fine monument was erected to his memory.

**Syllabus**, in Church history, a list embracing the "chief errors and false doctrines of our most unhappy age," compiled by order of Pope Pius IX., and sent, with an encyclical letter, dated Dec. 8, 1864, "to all the bishops of the Catholic world, in order that these bishops may have before their eyes all the errors and pernicious doctrines which he had reprobated and condemned," the number of which amounts to 80, probably in imitation of the 80 heresies mentioned by Epiphanius as existing in the first three centuries.

**Syllogism**, in logic, an argument expressed in strict logical form, so that its conclusiveness is manifest from the structure of the expression alone, without any regard to the meaning of the terms. (Whately.) In a perfect syllogism there must be three, and not more than three propositions, the last of which, containing the matter to be proved, is called the conclusion; the other two, containing the means by which the conclusion is arrived at, are called the premises. The subject of the conclusion is called the minor term, and its predicate the major term; the third term, with which the minor and major terms are compared in the premises, is called the middle

term. The premise which brings into relation the major and the middle terms is called the major premise, and that which brings the minor and middle term into a similar relation is called the minor premise.

**Sylphs**, in the fantastic system of the Paracelsists, the elemental spirits of the air, just as the salamanders are of fire and the gnomes of earth. They hold an intermediate place between immaterial and material beings. They eat, drink, speak, move about, beget children, and are subject to infirmities like men; but, on the other hand, they resemble spirits in being more nimble and swift in their motions, while their bodies are more diaphanous than those of the human race. They also surpass the latter in their knowledge, both of the present and the future, but have no soul, and when they die nothing is left.

**Sylva, Carmen**, pseudonym of Elizabeth, Queen of Rumania, a German author; born in Castle Monrepos near Neuwied, Rumania, Dec. 29, 1843. In 1869 she was married to Charles, then Prince, later King of Rumania, who died Oct. 11, 1914. Her publications include "Thoughts of a Queen"; "Edleen Vaughan"; "Shadows on Life's Dial"; and many poems, novelettes, and dramas. She died March 2, 1916.

**Sylvester I.**, a Pope who governed the Church during the reign of Constantine I. He was famous for the number of churches completed during his reign, among them the basilicas St. Peter's and St. Paul's; for his various Church laws and his influence over the emperor. He held office in 314-335.

**Sylvester II.**, a Pope. His attainments in science procured him the reputation of a magician. Among the numerous useful inventions attributed to Sylvester II. is the balance clock which was in use till the adoption of the pendulum in 1650. Sylvester H. was tutor to Otho III., and subsequently head of the school of Rheims, which he made one of the first in Europe. Robert, afterward King of France, was among his pupils. He was called to the papal chair on the death of Gregory V., and administered the affairs of the Church with much

prudence and moderation. He was the first French Pope. He died at a great age in 1003.

**Symbol**, that which specially distinguishes one regarded in a particular character, or as occupying a particular office; and fulfilling its duties; a figure marking the individuality of some being or thing; as, a trident is the symbol of Neptune.

**Symme's Hole**, an imaginary aperture in the earth's crust near N. lat. 82°, imagined by Capt. John Cleves Symmes (1780-1829) to communicate with the interior of the planet, which he thought was inhabited with animal and plant life, and lighted by two subterranean suns, Pluto and Proserpine. Humboldt states that Symmes repeatedly and publicly invited him and Humphry Davy to descend to the earth's interior by this hole. Jules Verne made this idea the basis for his story, a "Journey to the Center of the Earth."

**Sympathetic Nerve**, in anatomy, a nerve, or system of nerves, running from the base of the skull to the coccyx, along both sides of the body, and consisting of a series of ganglia along the spinal column by the side of the vertebrae. With this trunk of the sympathetic there are communicating branches which connect the ganglia, or the intermediate cord, with all the spinal and several of the cranial nerves proceeding to primary branches on the neighboring organs or other ganglia, and finally numerous flexures of nerves running to the viscera. Various fibers from the sympathetic communicate with those of the cerebro-spinal system. The term sympathetic has been applied on the supposition that it is the agent in producing sympathy between different parts of the body. It more certainly affects the secretions. Called also sympathetic system.

**Sympathetic Powder**, in old medicine, powder of sympathy; a powder of vitriol, introduced by Sir Kenelm Digby (1603-1665), who published a small book on its merits, and made known the method of its preparation in his "Chymical Secrets." The powder was said to be highly efficacious "in stanching of desperate bleeding at the nose, in stanching the

blood of a wound, and in curing any green wound (where there is no fracture of bones) without any plaister or ointment, in a few days."

**Sympathetic Strike**, a labor strike carried out by other crafts than the one primarily concerned, to the end that the first strike may be forced to a successful issue by a general cessation of business till the point in dispute in the initial strike may be decided. Of such a character was the great railroad strike in the United States in 1894, when the railroad employees struck in sympathy with the Pullman Car Company's employees.

**Sympathy**, a feeling corresponding to that felt by another; the quality or state of being affected by the affections of another, with feelings corresponding in kind if not in degree; compassion, fellow feeling, commiseration. Also, an agreement of affections or inclinations; a conformity of natural temperament, which makes two persons pleased or in accord with each other; mutual or reciprocal affection or passion; community of inclination or disposition.

**Symphony**, an elaborate musical composition for a full orchestra, consisting, usually, like the sonata, of three or four contrasted, yet inwardly related movements. Haydn, Mozart, Mendelssohn, and Beethoven are the most successful composers of this class of compositions.

**Synagogue**, a congregation or assembly of Jews for the purpose of worship or the performance of religious rites. Also, a building set apart for Jewish as a church or chapel is for Christian worship.

**Synchronograph**, a telegraphic device invented by Prof. Albert C. Crehore, of Dartmouth College, and Lieut. George O. Squier, two young scientists who were associated in the development of the polarizing photo-chronograph, the machine adopted by the United States government for measuring the velocity of projectiles. The invention of the synchronograph is based on the use of alternating currents in telegraphing. In the instruments now in common use, a continuous current is employed. This current is broken to make the required dots and dashes, by which the

messages are sent, resulting in "sparking" and delay. In an alternating circuit, however, there is a point at each alternation when the current is not running at all. This exact instant is seized in the new machine for making and breaking the circuit, and hence the "sparking" and consequent delay are avoided. In the words of Professor Bedell, the signaling over a line is accomplished by means of omitting particular waves of the alternating current.

**Syncopation**, in grammar, the contraction of a word by the omission of one or more letters or syllables from the middle. In music, suspension or alteration of rhythm by driving the accent to that part of a bar not usually accented. Syncopation may be completed in a bar, or it may be carried by sequence through several bars, or it may be so that more than one bar is involved in the syncopation. Syncopated counterpoint is the fourth species of counterpoint.

**Syncope**, the name given to that form of death characterized by failure and cessation of the heart's action as its primary feature. The term is also applied to the state of fainting produced by a diminution or interruption of the action of the heart, and of respiration, accompanied with a suspension of the action of the brain and a temporary loss of sensation, volition, and other faculties. Fatal syncope is usually the result of some nervous "shock," resulting from some severe lesion of organs, or from a want of blood, or an altered and abnormal state of blood pressure. Ordinary syncope is caused chiefly by weakness, mental emotion, etc.

**Syncretistic Controversy**, the name given to a series of controversies which arose in the Lutheran Church in the 17th century, from the subject of the discussion—the promotion of fellowship and union between the Protestant churches of Germany.

**Syndicates**, originally, councils or bodies of syndics; afterward, associations of persons formed with a view of promoting some particular enterprise, discharging some trust, or the like; now, combinations of capitalists for the purpose of controlling production and raising prices; popularly



## Synesius

known in the United States as "trusts."

The terms "syndicate" and "trust" have, however, both lost their original meaning as applied to industrial combinations, the trust method of maintaining separate corporations, and intrusting their stock to certain trustees representing the parties interested having given way almost entirely to the later and lawful plan of the organization of a new corporation which purchases out and out the interests of the companies and individuals concerned. This latter form of monopoly cannot be successfully assailed in the courts, although its effect in destroying and preventing competition is even more potent than was the trust method. The United States Steel Corporation, for instance, became the absolute owner of the plants under its control, subject only to a first mortgage to Andrew Carnegie. Yet the term "trust," in the sense of monopoly, is colloquially and in ordinary newspaper parlance applied to this organization.

The term "syndicate" is not, properly speaking, synonymous with "trust" in any sense. It is a combination of financial interests, usually large moneyed houses, in New York and other cities, to carry forward some great enterprise, to float the bonds of some new corporation, or to accept and dispose of a National, State or municipal loan. It is of necessity temporary in its existence and operations, and in no sense like a "trust" or corporate monopoly, which has permanent profit in view.

**Synesius**, Bishop of Ptolemais in the Libyan Pentapolis, acted also the various parts of soldier, diplomatist, orator, philosopher and poet; born in Cyrene about A. D. 375.

In 411 the people of Ptolemais, fearing the appointment of a corrupt governor, fixed on Synesius as their bishop. Synesius was most unwilling; but at last he yielded and was consecrated at Alexandria in 410.

The Ausurians invaded the country, and Synesius had to spend his nights on the ramparts and personally direct the defense. About this time his only surviving child died. Synesius was completely broken with his numerous

## Synoptic Gospels

troubles, and although the city was relieved he fell ill and died about 413.

**Synod**, a meeting or assembly of ecclesiastical persons for mutual deliberation on matters of difficulty or of general interest affecting the churches over which they rule, and designed for their guidance. In the early Church there were four kinds of synod. First, an Ecumenical, that is, a General or Universal Synod, commonly called a General Council; second, a National Synod, attended by the clergy of one nation only; third, a Provincial Synod, attended by the clergy of a province; and fourth, a Diocesan Synod, attended by the clergy of a single diocese. Among the Presbyterians a synod is a "court" intermediate between the General Assembly and a Presbytery, or, if no Assembly exist, it is then itself the highest court. It is divided into Presbyteries, of which there are never less than three. Each congregation is represented by a minister and an elder.

**Synodical Period**, in astronomy, the period between two successive conjunctions or oppositions of two heavenly bodies. A synodical month is a lunation, being the period from one full moon to the next full moon, or from new moon to next new moon. It is 29 days, 12 hours, 44 minutes, 2.37 seconds.

**Synonym**, a term commonly applied in a restricted sense to words having substantially the same meaning, with only slight shades of difference—as "observe" and "remark."

**Synoptic Gospels**, the first three Gospels, Matthew, Mark, and Luke, which regard events from the same point of view, and present close resemblances to each other. Four hypotheses have been framed to account for the correspondences: (1) That the Synoptic Gospels were derived from the common written source or sources. (2) That the earlier Gospels were consulted in the composition of the later ones. (3) That all the three were derived from oral tradition. (4) That they were all derived partly from oral tradition, but that the second was also copied from the first, and the third from the first and second. The Synoptic Gospels treat of the

humanity rather than the divinity of Jesus, though not in any way ignoring the latter.

**Syntax**, that part of grammar which treats of the manner of connecting words into regular sentences, constructing sentences by the due arrangement of words or members in their mutual relations according to established usage.

**Synthesis**, in chemistry, the building up of more or less complex bodies by the direct union of their elements, or of groups of elements. Thus, water can be produced synthetically by the union of two atoms of hydrogen with one atom of oxygen. In logic, the method by composition, in opposition to the method of resolution or analysis. In synthesis, we reason from axioms, definitions, and already known principles, till we arrive at a desired conclusion. Of this nature are most of the processes of geometrical reasoning. In synthesis, we ascend from particular cases to general ones; in analysis, we descend from general cases to particulars.

**Syra**, the most important, though not the largest of that group of islands in the *Ægean* Sea known as the Cyclades. It is about 10 miles long by 5 broad, has an area of 42½ square miles and is bare, rocky, and not very fertile. Its prosperity is of quite modern growth. Pop. of island 31,573.

**The capital, Syra, or Hermoupolis** pop. (Est.) 20,000, is the chief commercial entrepot of the *Ægean*. Every year it imports, principally manufactured wares, hides, grain and flour, yarns, timber, iron, salt fish, rice and coal to the average value of \$10,000,000, and exports tobacco, emery stone, valonia, sponges, and fresh vegetables.

**Syracuse**, a city and county-seat of Onondaga co., N. Y.; on Onondaga Lake, and the Erie canal. It has large salt interests, and the product is known far beyond the bounds of the United States, while its institutions of learning, both public and private are of a high order, and well attended.

The chief industry has always been the manufacture of salt. There are numerous salt companies, which manufacture both by solar and artificial heat, employing a vast amount of

capital and a multitude of men. Other industries include iron furnaces, machine shops, manufactories of silver, tinware, sheet iron, coach and wagon factories, and breweries. Pop. (1920) 171,717; (1930) 209,326.

**Syracuse**, anciently a famous city of Sicily; on the S. E. coast of the island; 80 miles S. S. W. of Messina; was founded by Corinthian settlers about 733 B. C. The colonists seem to have occupied the little isle of Ortygia, which stretches S. E. from the shore. The settlement rapidly rose to prosperity, and toward the end of the 6th century B. C. sent out colonies of its own. Little is known of the early political state of Syracuse; but about 485 the ruling families, probably descendants of the original colonists, were expelled by the lower classes of citizens. Gelon, despot of Gela, restored the exiles and at the same time made himself master of Syracuse. He increased both the population and the power of his new state, and won the highest prestige by a great victory over the Carthaginians at Himera. In 467 B. C. the democracy again got the upper hand — Thrasybulus, a "tyrant" of the baser sort, being expelled; and for 60 years a free and democratic government was enjoyed, under which Syracuse flourished more than it had ever done. During this period occurred the great struggle with Athens (415–414 B. C.). Nine years later Dionysius restored the "tyranny" of Gelon, and during a reign of nearly 40 years greatly increased the strength and importance of the city. In 317 B. C. Agathocles, a rude soldier of fortune, once more restored the despotic form of government, which continued with scarcely an interruption through the reign (50 years) of the enlightened Hiero II., the friend and ally of Rome, down to the conquest of the city by the Romans after a siege of two years, in which Archimedes perished (212 B. C.). Under the Romans Syracuse slowly declined, though with its handsome public buildings and its artistic and intellectual culture, it always continued to be the first city of Sicily. It was captured, pillaged, and burned by the Saracens in A. D. 873, and after that sank into complete and ruinous decay.

The modern city Siracusa, is confined to the original limits, Ortygia, which, however, is no longer an island but a peninsula. The people manufacture chemicals and pottery, and trade in fruits, olive oil, wine (exports), wheat, timber, and petroleum (imports) to the annual value of \$1,250,000. Pop. (1921) Est. 47,500.

**Syracuse University**, a coeducational institution in Syracuse, N. Y.; founded in 1871 under the auspices of the Methodist Episcopal Church.

**Syria**, a country of Western Asia, embracing the regions that lie between the Levant and the Euphrates from Mount Taurus in the N. to the S. border of Palestine, or even to the peninsula of Sinai. The physical conformation of Syria is throughout simple and uniform. A range of mountains, split in the N. into two parallel chains—Libanus and Anti-Libanus—fronts the Mediterranean, ranging in height from 6,000 feet in the N. up to 10,000 feet in the central parts, but falling again in the S. to 3,500 feet. Behind these mountains lies a table-land, that gradually falls away E. to the desert. The climate on the plateau is generally dry, and in certain localities hot. The valley of the Jordan is remarkably hot. The soil is in many parts possessed of good fertility, and in ancient times, when irrigation was more extensively practised, yielded a much greater return than it does at the present time. Damascus is noted for its gardens and orchards. Northern Syria is the home of the olive. The vine grows in nearly all parts of the country. Fruit (oranges, figs, etc.) is cultivated on the coast plains. Sheep and goats are the most important of the domestic animals. The principal exports are silks, cereals, soap, sponges, sesame, licorice, cottons, and tobacco. Manchester (England) goods are the chief imports. Chief port, Beyrout, and to it must be added Acre, Caiffa (Haifa), Tyre, and Tripoli. The pop. (by 1923 Est.) was 2,981,863. The bulk of the inhabitants are Mohammedans, but do not all profess the orthodox Sunnite creed; for instance, there are the Druses, certain sects of Shiites, and others. The Christians make up about

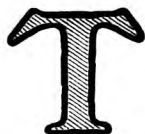
of treaty of peace with Turkey, 1920, is recognized as an independent State under French mandate, given by Supreme Council of Allied Powers.

**Syriac**, a dialect or branch of the Aramaic, and thus one of the Semitic family of languages. It was a vernacular dialect in Syria during the early centuries of our era, but ceased to be spoken as a living language about the 10th century, being crowded out by that of the Arabian conquerors. A very corrupted form of it, however, is still spoken by a few scattered tribes, and principally by the Nestorians of Kurdistan and Persia.

**Syringa**, an Oleaceæan genus of deciduous shrubs, with simple leaves, and very fragrant flowers in terminal thyrsoid panicles. Known species about six. Natives apparently of Southeastern Europe and Central and Eastern Asia. *Syringa vulgaris* is the lilac.

**Syrup**, in popular language, the uncrystallizable fluid finally separated from crystallized sugar in the process of refining, either by the draining of sugar in loaves, or by being forcibly ejected by the centrifugal apparatus in preparing moist sugar, commonly known as golden syrup. By sugar manufacturers the term syrup is applied to all strong saccharine solutions which contain sugar in a condition capable of being crystallized out, the ultimate uncrystallizable fluid being distinguished as molasses or treacle. In chemistry, a saturated, or nearly saturated, solution of sugar in water. In pharmacy, syrup is a preparation in which sugar forms an important ingredient, and gives a peculiar consistence to the liquid. Its general use is to disguise the flavor of drugs; but in some cases, as in that of the iron iodide, the sugar preserves the active ingredient from undergoing chemical change.

**Systyle**, in architecture, a term applied to a building in which the pillars are closely placed, but not quite so close as in the pycnostyle, the intercolumniation being only two diameters, or four modules, of the columns. A temple or other edifice which has a row of columns set close together around it, as in the Parthenon, at Athens.



**t**, the 20th letter and 16th consonant of the English alphabet, is a sharp, mute consonant, and closely allied to d, both being dentals. It is formed by pressing the tip of the tongue closely against the root of the upper teeth, and differs from d only in being non-vocal, while d is uttered with the voice.

**Tabard, Taberd, Tabert, or Tabeld**, a light vestment worn over the armor, and generally embroidered with the arms of the wearer. It was close-fitting, open at the sides, with wide sleeves or flaps reaching to the elbows. It originally reached to the middle of the leg, and was afterward made shorter. It was at first worn chiefly by the military, but afterward became an ordinary article of dress of other classes in England and France in the Middle Ages. The office was created in 1417 by Henry V. for the service of the Order of the Garter, which till then had been attended by Windsor heralds. The tabard is now worn only by heralds and pursuivants at arms, and is embroidered with the arms of the sovereign.

**Tabb, John Banister**, an American educator and author; born in Virginia, March 22, 1845. He was Professor of English Literature at St. Charles College, Ellicott City, Md. He wrote: "Poems"; "Lyrics"; "Rules of English Grammar"; etc. D. 1909.

**Tabby**, silk or other stuff having an irregular waved or watered surface produced by pressure, usually between engraved rollers in the mode of calendering, known as tabbying. There is but little difference between tabbying, watering, and moire, the effect in each case being produced by the flattening of some of the fibres while

the others remain undisturbed, causing the different parts to reflect the light unequally. A mixture of lime with shells, gravel, or stones in equal proportions, forming a mass which, when dry, becomes as hard as rock. It is used in Morocco as a substitute for brick or stone in building.

**Tabernacle**, a slightly-constructed temporary building or habitation; a tent, a pavilion. Figuratively, a temple; a place of worship; a sacred place; specifically, the central place of worship for Israel till Solomon built the temple. Also, the human frame as the temporary abode of the soul.

In the Roman Church, a receptacle for the consecrated host for benediction and the ciborium containing the smaller hosts which the laity receive.

**Tabernacles, Feast of**, in Jewish antiquities, one of the three leading Jewish feasts, on the recurrence of which all the males were required to present themselves at Jerusalem. During this feast the people dwelt on their house-tops or elsewhere in booths made of the branches of trees, in commemoration of their tent life in the wilderness.

**Tabes**, a term formerly applied to a disease characterized by a gradually progressive emaciation of the whole body, accompanied with languor, depressed spirits, and, for the most part, imperfect or obscure hectic fever, without the real cause of the affection being properly localized or defined.

**Tablature**, in anatomy, a division or parting of the skull into two tables. In art, a painting on a wall or ceiling. In music, a general name for all the signs and characters used in music; those who were well acquainted with these signs were said to sing by the tablature.

**Tableaux Vivants**, "living pictures," representations of works of painting and sculpture, or of scenes from history or fiction, by living persons. They are said to have been invented by Madame de Genlis, when she had charge of the education of the children of the Duke of Orleans. They were long common in theatres as they are now in private circles.

**Table-land**, in physical geography, a plateau; a plain existing at some considerable elevation above the sea. Volcanic rocks often make such tablelands, as in Central India; so do limestones. Or a sea bed or a lake bed, or a great stretch of country, may be upheaved. In North America there are plateaux along the Pacific Labrador, etc., and in South America, in Brazil and the adjacent countries.

**Tables**, in mathematical science, pure or applied, lists of numbers giving the values of a function of a variable for different values of that variable. The function may be physical property common to different substances, as in tables of densities, specific heats, etc.; or it may be mathematical function of a continuously varying variable tabulated for definite successive values of that variable, as in tables of logarithms sines, tangents, and astronomical tables generally.

**Taboo**, or **Tabu**, a Polynesian word, denoting an institution which was formerly in existence throughout Polynesia and New Zealand, but has now to a large extent disappeared before the spread of Christianity and civilization. The word signifies something set apart, either as consecrated or accursed, the idea of prohibition being conveyed in either case, whence the English word, tabooed, i. e., forbidden. For example, in New Zealand the person of a chief was strictly taboo, and hence might not be touched; while the volcano Tongariro was taboo as being the supposed residence of demons, and even to look on it was at one time forbidden.

**Tabor, Mount**, a solitary elevation on the N. E. border of the plain of Esdraelon. It is remarkable for the symmetry of its form, which resembles a truncated cone, from certain points appearing almost hemispher-

ical. The top measures about half a mile across, and is about 1,300 feet above the level of the plain. It is not mentioned in the New Testament, but there is a tradition that it was the scene of the Transfiguration. This, however, is rendered impossible by the town on the top.

**Tabor, Horace Austin Marner**, an American capitalist; born in Holland, Vt., Nov. 30, 1830; went to Colorado in 1859, and engaged in mining. He worked with only moderate success till 1878, when he discovered a rich deposit of silver in what was afterward known as the "Little Pittsburg" mine. A year later he sold his interests in this property for \$1,000,000; a sum which eventually yielded him a fortune estimated at \$6,000,000. In 1884 he was chosen United States Senator, to fill the unexpired term of Henry M. Teller. Soon afterward he began to suffer serious financial losses. Bad investments and the panic of 1893 swept away all his fortune and drove him to begin life anew as a miner. He returned to Colorado and opened a mine which proved a failure. He was appointed postmaster of Denver in 1898, in which office he continued to serve till his death, April 10, 1899. During his prosperous days he did much toward the improvement of the city of Denver.

**Taborites**, a section of Calixtines, who received their name from a great encampment organized by them on a mountain near Prague in 1419, for the purpose of receiving the Communion in both kinds. On the same spot they founded the city of Tabor, and, assembling an insurrectionary force, marched on Prague under the lead of Ziska (July 30, 1419), and committed great atrocities under the pretense of avenging insults offered to the Calixtine custom of communicating under both kinds. On the death of King Wenceslaus (Aug. 16, 1419) they began to destroy churches and monasteries, to persecute the clergy, and to appropriate church property on the ground that Christ was shortly to appear and establish His personal reign among them. They were eventually conquered and dispersed in 1453 by George Podiebrada (afterward King of Bohemia).



**Tabriz**, or **Tabreez** (the ancient **Tauris**), a city of Persia, capital of the province of Azerbaijan, on the Aigi, 36 miles above its entrance into Lake Urumia. It is surrounded with a wall of sun-dried brick, with bastions, and entered by seven or eight gates. There are numerous mosques, bazaars, baths, and caravanserais. Tabriz has manufactures of silks, cottons, carpets, leather and leather goods, etc. It is the great emporium for the trade of Persia on the W., and has an extensive commerce. It has frequently suffered from earthquakes. Pop. 200,000.

**Tacitus**, the historian, is known to us chiefly from autobiographical touches in his own writings and from allusions in Pliny's letters. Born perhaps in Rome, under the Emperor Claudius between A. D. 52 and 54, it is inferred that his family was respectable from his education, his profession, and his marriage. He rose to eminence as a pleader at the Roman bar; and in 77 or 78 married the daughter of Agricola, the conqueror and governor of Britain.

Under Emperor Nerva he became consul suffectus, succeeding the great and good Virginus Rufus, on whom he delivered in the Senate a splendid oration funebre. In A. D. 99, conjointly with the younger Pliny, he prosecuted the political malefactor, Marius Priscus, and the "characteristic dignity" with which his share of the prosecution was conducted won him the thanks of the Senate. After this we lose sight of him, but may assume it as certain that he saw the close of Trajan's reign, if not the opening of Hadrian's. The high reputation he enjoyed in life is attested by the eulogistic mention of him repeatedly made in Pliny's letters, and in the 3d century the Emperor Tacitus, proud to claim kinship with him, built in his honor a tomb which was still standing in the later decades of the 16th century, when it was destroyed by Pope Pius V. The same emperor also issued an edict by which the works of his namesake were to be copied out 10 times yearly for presentation to as many public libraries.

**Tacitus, Marcus Claudius**, a Roman emperor; born in Terni, Umbria,

about A. D. 200; was elected on the death of Aurelian, A. D. 275, when in his 75th year. He was descended from the great historian, and had been twice consul; but he reigned only six months, in which short space he displayed singular wisdom, vigor, and moderation. He was assassinated at Tyana, in Cappadocia, in 276.

**Tack**, in nautical language: (1) The lower forward corner of a fore-and-aft sail. (2) The lower, weather corner of a course, or lower square sail. (3) The rope by which the forward lower corner of a course or stay-sail is drawn forward and confined. (4) A rope by which the lower corner of a studding-sail is drawn outward and held to the boom. (5) Hence, the course of a ship in regard to the position of her sails; as, the starboard tack or port tack; the former when she has the wind on her starboard, the latter when the wind is on her port side.

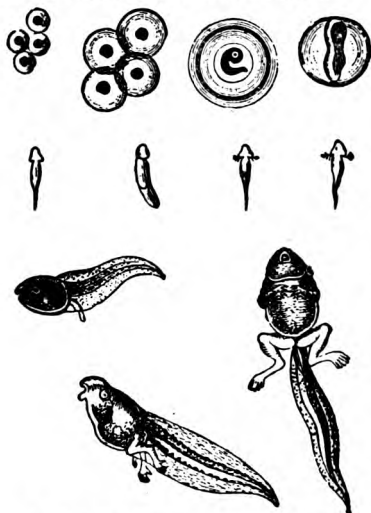
**Tackett, John Robert**, an American physician; born near Water Valley, Miss., July 28, 1857; commissioner to Havana, Cuba, to investigate the yellow-fever conditions for the State Board of Health in 1897. During the Spanish-American War he was in charge of the yellow-fever hospital near Santiago, Cuba.

**Tacoma**, city, port of entry, and capital of Pierce county, Wash.; at the head of Commencement bay, an arm of Puget Sound, and on the Northern Pacific and other railroads; 25 miles N. E. of Olympia; commands a fine view of the Sound, Cascade Mountains, and Mt. Rainier (14,363 ft.), 44 miles to the S. E.; is the second industrial city of the State; had in 1914 a manufacturing output valued at \$28,287,257; in 1916 an assessed property valuation exceeding \$54,629,000; and is the seat of the University of Puget Sound (M. E.), Pacific University (Luth.), Whitworth College (Presb.), Ferry Museum of Art, Academy of the Visitation (R. C.), and Annie Wright Seminary. Pop. (1920) 96,965; (1930) 106,817.

**Tactics, Military**, the branch of military science which relates to the conduct of troops in battle. Strategy, on the other hand, refers to the movements leading up to a battle.

**Tactics, Naval**, the art of maneuvering ships and fleets for the purpose of battle. Naval strategy, on the other hand, is the science of combining and employing fleets or single ships in order to carry out defined operations at sea or against an enemy's coast, for obtaining command of the sea or certain portions of it.

**Tactile Corpuscle**, in anatomy, one of the three kinds of sensory terminal organs. They were discovered by R. Wagner and Meissner. They are mostly of oval form, nearly one three-hundredth of an inch long, by one eighth-hundredth thick. They have a core of soft homogeneous substance within, and a capsule of connective tissue with oblong transverse nuclei outside. They exist in certain papillæ in the skin of the hand and foot, on the fore-arm, and the nipple.



METAMORPHOSIS OF A TADPOLE.

**Tadpole**, the larva of the anurous amphibia, sometimes so far extended as to include larvæ of the urodela, which undergo a much less complete metamorphosis. At first the young have no respiratory organs or limbs. They are all head and tail with simple entire gills which soon disappear,

to be followed by others of more complicated structure, situated within the cavity of the body as in fishes. After a certain length of time the hind legs begin to appear, the head becomes more developed, and the body assumes a more compact form. Still later the forelegs are found to exist fully formed beneath the skin and ready ultimately to burst forth. The tadpole at first seems to derive its subsistence from the fluid absorbed within its body and on the surface, but soon begins to seek its food amidst softened or decomposing vegetable matter. From that period the tadpole begins to assume more and more the appearance of a frog. Toes appear on its hind legs, the tail very rapidly disappears by absorption, and finally the fore-legs become fully developed and the metamorphosis of the tadpole is completed.

**Tael**, a money of account in China, the value of which varies considerably according to locality and the rate of exchange. On Oct. 1, 1901, it was worth in different localities from \$0.639 to \$0.704 in American gold. The tael is also a definite weight, equal to 1.208 ounces Troy.

**Tæniada**, cestoid worms; an order containing the tapeworms and bladder worms. Internal parasites, hermaphrodite when mature. The body is elongated and consists of a head with many flattened articulations. The small narrow head or scolex contains nearly all the organs of the body, and is essentially the animal, the articulations, called metameræ or proglottides, being generative segments thrown off by the head in the manner called budding or "gemination." Each reproductive joint contains both male and female organs. The joints nearest the head are the newest, those farthest from it are the most mature. The anterior end of the body, or forepart of the scolex, is provided with suckers, hooks, or foliaceous appendages, or with all three combined. There is no mouth or alimentary canal, so that it must derive materials for its nourishment only by absorption through the skin. The whole animal is called a strobilus. After a time some of the metameræ break off, the worm continuing to grow.

**Taffety**, or **Taffeta**, a term formerly applied to all plain silks simply woven by regular alternations of the warp and weft. Modifications have, however, been introduced, by varying the quality of the warp and weft and by the substitution of various colors for the single one of the original taffety. It has therefore become a sort of generic term for plain silk, and even for some combinations of silk, wool, etc.

**Taffrail**, originally the upper flat part of a ship's stern, so called because frequently ornamented with carvings or pictures; now a transverse rail which constitutes the uppermost member of a ship's stern.

**Taft, Alphonso**, an American jurist; born in Townsend, Vt., Nov. 5, 1810; was graduated at Yale University. He was judge of the Cincinnati Superior Court in 1866-1872; was appointed Secretary of War, March 8, 1876; served in that capacity till May 22 of the same year; and was then made attorney-general. He was United States minister to Austria in 1882-1884, and to Russia in 1884-1885. He died May 21, 1891.

**Taft, William Howard**, first civil governor of the Philippine Islands, and twenty-seventh President of the United States; was born in Cincinnati, Ohio, Sept. 15, 1857, son of Alphonso Taft; was graduated from Yale in 1878, and from Law School of Cincinnati College in 1880; admitted to Ohio bar same year; has been public prosecutor, judge of the Superior Court of Ohio; judge of United States Circuit Court, and in June, 1901, was appointed governor of the Philippines. He became Secretary of War in 1904 and was re-appointed in 1906. In 1906 he was sent by the President to Cuba to adjust the insurrectionary conditions there, and in 1907 to Panama to inspect the canal. He visited it again in 1909, after his election to the Presidency. He was nominated for President by the Republican party in 1908, and was elected by a popular vote of 7,677,788 and an electoral vote of 321, over William Jennings Bryan, who received 6,407,982 popular and 162 electoral votes. In 1912 he was the candidate of his party for a second term, and the

campaign of that year was marked by the defection of a large number of members of the Republican party, the efforts of former President Roosevelt to secure the nomination, the organization in the Republican ranks of the Progressive party, the nomination of Mr. Roosevelt by the latter, the spirited campaign and attempted assassination of Mr. Roosevelt, and the small heed paid to the political situation by the business interests of the country. A remarkable degree of general prosperity sprang up during the campaign, crops reached a larger output than ever in the history of the country, the iron and steel industry grew beyond the capacity of its plants, and the railroads were unable to supply sufficient rolling stock for shipping requirements. The Republican party emphasized these conditions as a reason for support, while the Democratic party made its chief issue on the necessity for tariff reform. In the ensuing elections Nov. 5, 1912, President Taft was defeated by Woodrow Wilson, the Democratic candidate. On the expiration of his term he became Kent Professor of Law at Yale University, making a specialty of Federal Constitutional Law. He was President of the American National Red Cross in 1906-13, and on the reorganization of that body on a military basis in 1917, President Wilson appointed him one of two Major-Generals in charge. During the World War he made extended lecturing tours of the country, urging the heartiest support of the Government. He also served as President of the American Bar Association in 1913. In 1921 he was appointed by President Harding as Chief Justice of the United States Supreme Court. Died Mar. 8, 1930.

**Tages**, in mythology, a grandson of Jupiter, and the first who taught the 12 nations of the Etruscans the arts of augury and divination. He was said to have arisen from a clod of earth turned by a plow.

**Taguicati**, the warree, or white-lipped peccary.

**Tail-piece**, a piece at the end, as of a series of engravings; an appendage. Also a piece of ebony or other material appended to the end of a violin or other similar instrument, to

which the strings are fastened. In printing, tail-pieces are ornaments in wood or metal placed in short pages, partly to fill up the vacancy.

**Taine, Hippolyte Adolphe**, a French writer; born in Vouziers, Ardennes, France, April 21, 1828; was educated at the College Bourbon and the Ecole Normale. His "History of English Literature," one of the best and most philosophical works on the subject, appeared in 1864 (4 vols.). He died in Paris, March 5, 1893.

**Tainter, Charles Sumner**, an American inventor; born in Watertown, Mass., April 25, 1854; was the inventor of the graphophone, and an associate inventor of the radiophone, an instrument for transmitting sounds to a distance through the agency of light; and was a member of the United States expedition to the South Pacific to observe the transit of Venus in 1874. He received a gold medal at the Electrical Exhibition in Paris in 1881, and in 1899 was decorated by the French Academy.

**Tai-ping**, or **Universal Peace**, the name of the dynasty which Hung Hsiu-ch'wan or Tien-te, a Chinese revolutionist, wished to found in 1850, by restoring the ancient national religion of Shan-ti, and overthrowing the Manchu dynasty. The rebellion was not suppressed until 1865 after a long period of civil war. Followers of Hung Hsiu-ch'wan were called Tai-pings.

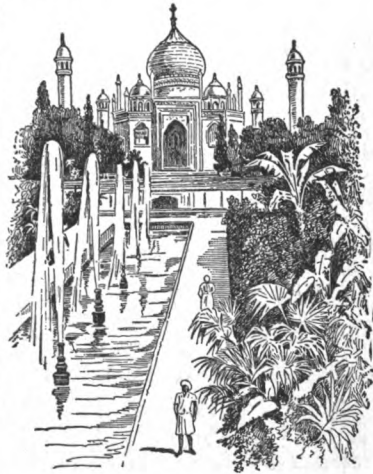
**Tait, Archibald Campbell**, Archbishop of Canterbury; born in Edinburgh, Scotland, Dec. 22, 1811; was educated at the Edinburgh Academy and Glasgow University, whence he passed as a Snell exhibitioner to Balliol College, Oxford. In 1842 he was appointed successor to Dr. Arnold as head master of Rugby, in 1849 became Dean of Carlisle, and in 1856 Bishop of London, as successor to Blomfield. In 1868 he was made primate of all England by Mr. Disraeli. He took a keen interest in missions, and greatly helped to extend and improve the organization of the Church in the colonies. The Lambeth Conference of 1878 took place under his auspices. He lost in 1878 both his only son, the Rev. Craufurd Tait, and his wife, a daughter of Archdeacon Spooner, whom he had married in

1843; and he himself died Dec. 3, 1882.

**Tait, John Robinson**, an American artist; born in Cincinnati, O., Jan. 14, 1834. He was for several years the art critic of the New York "Mail and Express" and was the author of "European Life, Legend and Landscape," "Dolce far Niente" and papers on art in leading magazines. He died July 29, 1909.

**Tai-Yuan**, a town of China, capital of Shan-si; on the Fuen-Ho, an affluent of the Hoangho, 250 miles S. W. of Peking. For many years the residence of the emperors, it is noted for its magnificent mausoleums. The chief manufactures are sword blades and knives. Pop. about 200,000.

**Tajacu**, or **Tajassu**, in zoölogy, the collared peccary, the smaller of the two species of the genus. It is about 36 inches long, dark gray in color, with a white or light gray band across the chest from shoulder to shoulder.



THE TAJ MAHAL.

**Taj Mahal**, or **Mehal** ("Gem of Buildings"), a famous mausoleum, erected at Agra, India, by Shah Jehan for his favorite wife. It is 186 feet square with the corners cut off, and

consists of two tiers of arches, with a single-arched porch in the middle of each side, the whole surmounted by a dome 58 feet in diameter and about 210 feet in height, flanked by four octagonal kiosks. The interior is divided into four domed chambers in the corners, and a large central arched octagon, all connecting by corridors. The central octagon contains two cenotaphs surrounded by a very noticeable openwork marble rail. The only light admitted enters through the delicately pierced marble screens of the windows. The decoration is especially noticeable for the stone mosaics of flower themes and arabesques, much of them in agate, jasper, and bloodstone. The entire structure stands on a white marble platform 18 feet high and 313 feet square, with tapering cylindrical minarets 133 feet high at the corners.

**Talavatchi**, a subtle poison, of which the constituents are unknown, formerly manufactured by the Aztecs, and by them handed down to their descendants, the Mexican Indians. Skillfully administered, it is said to destroy the mind while leaving slight effects on the body. The peculiar effect of the poison seems to be to induce monomania or epilepsy, and sometimes both.

**Talbot, Charles Remington**, an American Episcopal clergyman and writer; born in 1851; died in 1891.

**Talbot, Eugene S.**, an American dentist; born in Sharon, Mass., March 8, 1847; was graduated at the Pennsylvania Dental College in 1871; received the degree of M. D. from the Rush Medical College in 1880; and became Professor of Dental Surgery at the Woman's Medical College. In 1890 he was honorary president of the Dental Section at the 10th International Medical Congress in Berlin, and in 1897 honorary president of the Dental Section at the 12th International Medical Congress in Moscow.

**Talc**, an orthorhombic mineral occurring in short hexagonal prisms and plates, also in globular and stellated groups, compact, massive. Luster, pearly; color, apple-green, white shades of gray; sectile; feel, greasy. Composition, varying with the amount of water present, but essentially a hy-

drated silicate of magnesia. Being thoroughly incombustible it is of great value in the manufacture of fireproof wall paper, paper window curtains, etc. Even in its crude state it is found to yield one of the best lubricants known. Mixed with common grades of soap, it makes them as pleasant to the touch as the choicest brands, rendering the skin smooth and soft, though entirely without any cleansing qualities. It is also largely used in the manufacture of patent wall plaster, in which its addition gives a smooth, glossy finish to walls and ceilings that no other substance lends. Talc powder, duly refined, is exquisitely soft and fine grained. Hence it makes an excellent infant powder, softening the tenderest skin and preventing chafing, irritation, or even "prickly heat." The production of talc and soapstone in the United States in 1915, except that of fibrous talc from Gouverneur, N. Y., was 98,677 short tons, valued at \$1,026,739, and the imports of talc had a value of \$199,840. The yield of fibrous talc was 88,264 short tons, valued at \$864,843.

**Talegalla**, or **Brush Turkey**, a genus of gallinaceous birds. Of the four species the Australian is best known. It is a large bird, almost the size of a female turkey, with blackish-brown plumage, pink-red head and neck, and yellow wattle. It inhabits the thickly-wooded parts of New South Wales. The flesh of the bird is excellent, and the eggs are also very delicate and eagerly sought after. It is thought that this bird might be added to the list of domestic poultry.

**Talent**, figuratively: (1) A gift, endowment, or faculty; some peculiar faculty, ability, power, or accomplishment, natural or acquired. (2) Mental endowments or capacities of a superior kind; general mental power (used in either the singular or the plural). (3) Hence, used for talented persons collectively; men of ability or talent. (4) Habitual backers of horses, or takers of odds, as opposed to the bookmakers, or layers of odds.

In Greek antiquity, the name of a weight and also of a denomination of silver money equal to \$1,218.75. It is also applied by Greek writers and



their translators to various foreign weights and denominations of money.

**Ta-lien-wan.** See DALNY.

**Tallera**, in botany, a palm tree, akin to the talipot, but only about 30 feet high. The trunk is nearly cylindrical, and has at the top a number of fan-shaped leaves. The fruit which is about the size of a crab apple, is wrinkled and of a dark color. It grows in India, where the leaves are used for roofing houses. The natives also write on them with their iron or steel stylus.

**Talipot, Taliput, or Taliput**, a palm tree, native of Ceylon and the Malabar coast, and cultivated in Bengal and Burma. It has a tall, cylindrical stem, with a soft rind and soft pink internal pith, both formed of vascular bundles. The leaves are in a cluster at the top of the stem, and are fan-shaped. The pith is made into a kind of sago, the leaves are written upon by the natives with a steel stylus; they are, moreover, made into fans, mats, and umbrellas.

**Talisman**, a species of charm, consisting of a figure engraved on metal or stone when two planets are in conjunction, or when a star is at its culminating point, and supposed to exert some protective influence over the wearer of it. The terms talisman and amulet are often considered nearly synonymous, but the proper distinctive peculiarity of the former is its astrological character.

**Talitrus**, in zoölogy, a genus of Amphipoda, or small crustaceans, commonly known as sandhoppers. They are about half an inch long. They exist in myriads along sandy shores between high and low water mark, feeding on decaying garbage. They can leap several feet into the air, and escape pursuit by burrowing into damp sand or taking refuge under seaweed.

**Talladega College**, a coeducational institution in Talladega, Ala., founded in 1867 under the auspices of the Congregational Church.

**Talleyrand-Perigord, Charles Maurice de, Prince of Benevento**, a French diplomatist; born in Paris, France, Feb. 13, 1754. In 1790 he was elected president of the National Assembly. In 1792 he was sent to London charged with diplo-

matic functions, and during his stay there was proscribed for alleged royalist intrigues. Forced to leave England by the provisions of the Alien Act, in 1794 he sailed for the United States, but returned to France in 1796. The following year he was appointed minister of foreign affairs; but being suspected of keeping up an understanding with the agents of Louis XVIII. he was obliged to resign in July, 1799.

He now devoted himself entirely to Bonaparte, whom he had early recognized as the master spirit of the time, and after Bonaparte's return from Egypt contributed greatly to the events of the 18th Brumaire (Nov. 10, 1799), when the directory fell and the consulate began. He was then reappointed minister of foreign affairs, and for the next few years was the executant of all Bonaparte's diplomatic schemes. After the establishment of the empire in 1804 he was appointed to the office of grand-chamberlain, and in 1806 was created Prince of Benevento. After the peace of Tilsit in 1807 a coolness took place between him and Napoleon, and became more and more marked. In 1808 he secretly joined a royalist committee. In 1814 he procured Napoleon's abdication, and afterward exerted himself very effectually in re-establishing Louis XVIII. on the throne of his ancestors. He took part in the Congress of Vienna, and in 1815, when the allies again entered Paris, he became president of the council with the portfolio of foreign affairs; but as he objected to sign the second peace of Paris he gave in his resignation. After this he retired into private life, in which he remained for 15 years. When the revolution of July, 1830, broke out, he advised Louis Philippe to place himself at its head and to accept the throne. Declining the office of minister of foreign affairs he proceeded to London as ambassador, and crowned his career by the formation of the Quadruple Alliance. He resigned in November, 1834, and quitted public life forever. He died in Paris, May 17, 1838.

**Tallien, Jean Lambert**, a French revolutionist; born in Paris in 1769. A prominent Jacobin, he became, after Aug. 10, secretary of the Insurrec-

tionary Commune, was one of the leading "Septembrists," and afterward eloquently defended the massacres he had promoted. His services on this occasion gained him a seat in the Convention, where he was an earnest defender of Marat, and a savage advocate for the execution of the king. Tallien placed himself at the head of the party afterward known as the Thermidorians, vigorously attacked the triumvirate of terror, and ultimately brought about its downfall. From this point his political influence declined. Tallien continued in the legislature till 1798, when he accompanied Bonaparte to Egypt in the character of savant. The ship in which he was returning was captured by an English cruiser, and he was feted by the Whig party in London in 1801. Tallien, after holding for some years the post of French consul at Alicante, died in Paris, Nov. 16, 1820, in poverty and obscurity.

**Tallmadge, Benjamin**, an American military officer; born in Brookhaven, N. Y., Feb. 25, 1754. He attained the rank of colonel; in September, 1779, captured a band of Tories on Long Island; and in 1780 took Fort George, on the same island. He was a member of Congress in 1801-1817. He died in Litchfield, Conn., March 7, 1835.

**Tallow**, in chemistry, a name applied to the harder and less fusible fats occurring chiefly in the animal kingdom, the most common being beef and mutton tallow. When pure it is white and almost tasteless, and consists of stearin, palmitin, and olein in varying proportions.

**Tallow Tree**, a native of China. The leaves are rhomboidal, tapering at the tip, with two glands at the top of the petiole. The fruits are about half an inch in diameter, and have three seeds, which are covered by a kind of wax, used in China for making candles, whence the name.

**Tally**, a notched stick employed as a means of keeping accounts. In buying or selling it was customary for the parties to the transaction to have two sticks, or one stick cleft longitudinally into two parts, on each of which was marked with notches or cuts the number or quality

of goods delivered, or the amount due between debtor and creditor, the seller keeping one stick and the buyer the other. The mode of keeping accounts by tallies was introduced into England by the Normans, 1066. Besides accounts, other records were formerly kept on notched sticks, as almanacs, in which red-letter days were signified by a large notch, ordinary days by small notches, etc. Such were formerly very common in most European countries. In England tallies were long issued in lieu of certificates of indebtedness to creditors of the State. In 1696, according to Adam Smith, this species of security was at 40-60 per cent. discount, and bank notes 20 per cent. Seasoned sticks of willow or hazel were provided, and these were notched on the edge to represent the amount. Small notches represented pence; larger, shillings; still larger, pounds; proportionately larger and wider, were 10, 100, 1,000 pounds. The stick being now split longitudinally, one piece was given to the creditor, and the other was laid away as a record. When an account was presented for payment, the voucher was compared with the record. When paid, the tally and counter-tally were tied up together, and laid away, accumulating for a long series of years. The system of issuing exchequer tallies was abolished by an act of George III., and by acts of William IV.

**Talmage, John Van Nest**, American clergyman; born Aug. 18, 1819, at Somerville, N. J. Educated at Rutgers College. Went as missionary, under the auspices of the Reformed Dutch Church, to Amoy, China, in 1847. His labors there were very successful, and were continued, with brief intermissions until 1890, when he returned to the United States intending to remain a short time, for the recovery of his health. His disease proved incurable, and he died August 19, 1892.

**Talmage, Thomas De Witt**, an American clergyman; born in Bound Brook, N. J., Jan. 7, 1832; was graduated at the New Brunswick Theological Seminary in 1856. He was pastor of the Central Presbyterian Church in Brooklyn, N. Y., in 1869-1894, and afterward became associate and later became full pastor of the

First Presbyterian Church in Washington, D. C. He held this charge till 1899, when he resigned in order to apply himself wholly to literary work. His sermons were published every week for 30 years, and in 1901 it was estimated that their publication in 3,600 different papers had carried them to no fewer than 30,000,000 people weekly. He was for many years the editor of the "Christian Herald," and was the author of "Crumbs Swept Up," "Woman: Her Powers and Privileges"; "From Manger to Throne"; "Every-Day Religion," etc. He died in Washington, D. C., April 12, 1902.

**Talmage, James Edward,** an American geologist; born in Hungerford, England, Sept. 21, 1862. His family immigrated to Utah in 1876, having become Mormons. He was president of the Latter-day Saints College, Salt Lake City, in 1888-1893, and president of the University of Utah in 1894-1897, when he resigned the presidency of the latter, but retained the chair of geology there.

**Talmud,** the name of the fundamental code of the Jewish civil and canonical law, comprising the "Mishna" and the "Gemara," the former as the text, the latter as the commentary and complement. The "Gemara" consists of minute directions as to conduct, sometimes of a puerile nature, other parts again containing the loftiest expression of religious feeling, passages which are said to be the source of almost all that is sublime in the liturgy of the Church of Rome, and those liturgies which have been mainly derived from it. Interspersed throughout the whole are numerous tales and fables, introduced for the sake of illustration. The Jews are carefully instructed in it, and its language is sometimes quoted and acknowledged in the New Testament. The "Gemara" was originally an oral commentary of the "Mishna," as the "Mishna" itself was originally an oral commentary of the "Mikra," or written law. These oral comments were handed down from age to age, differing of course in different localities, and gradually increasing in quantity. They were at last committed to writing in two forms, the one called the "Jerusa-

lem" and the other the "Babylonian Gemara," or, with the addition of the "Mishna," which is common to both, the "Jerusalem and the Babylonian Talmud." The "Mishna," with its corresponding "Gemara," is divided into six principal divisions; agriculture, festivals, women, damages, holy things, and purifications; these are subdivided into sixty-three tracts.

**Tamarack,** the American or black larch. It has weak and drooping branches, which sometimes take root, forming a natural arch. The leaves are clustered and deciduous, the cones oblong with numerous spreading scales. It constitutes a feature of the forests in Canada and the Northern United States. Its timber is valuable, but less so than the larch.

**Tamarin,** the name of certain South American monkeys. The tamarins are active, restless, and irritable little creatures, two of the smallest being the silky tamarin and the little lion monkey, the latter of which is only a few inches in length.

**Tamarind,** an evergreen tree, 80 feet high by 25 in circumference, cultivated in India as far N. as the Jhelum, and very largely planted in avenues and "topes." The wood, which is yellowish-white, sometimes with red streaks, is hard and close-grained. It weighs about 83 pounds per cubic foot, is highly prized, but is very difficult to work, and is used in India for turning wheels, mallets, planes, furniture, rice-pounders, oil and sugar mills, etc. The West Indian and South American variety has legumes only three times as long as broad, whereas the Indian tree has them six times as long.

The tamarinds sold in the United States are chiefly West Indian tamarinds. They differ from the Black or East Indian tamarinds, of which the preserved pulp is black.

**Tambourine,** or **Tambourin,** an ancient pulsatile musical instrument of the drum class, popular among all European people, but particularly those of the S. The Biscayan and Italian peasantry employ it on every festal occasion. It is formed of a hoop of wood, sometimes of metal, over which is stretched a piece of

parchment or skin; the sides of the hoop are pierced with holes, in which are inserted pieces of metal in pairs, called jingles. Small bells are sometimes fastened on to the other edge of the hoop. It is sounded by being struck with the knuckles, or by drawing the fingers or thumb over the skin, which produces what is called "the roll," a peculiar drone mingled with the jingle of the bells or pieces of metal.



TAMARIND: BRANCH IN FLOWER.  
a seed-pod section.

**Tambour Work**, a species of embroidery on muslin or other thin material, worked on circular frames which resemble drum heads. The practice of tambouring is rapidly dying out, being replaced by pattern weaving, by which tambour work can be closely imitated.

**Tamias**, in zoölogy, the ground squirrel; a genus with four species, all found in North America. They are popularly known as chipmunks, and are among the commonest of the indigenous rodents.

**Tamils**, the name of a race which inhabits South India and Ceylon. The Tamils belong to the Dravidian stock of the inhabitants of India, and are therefore to be regarded as among the original inhabitants who occupied the country before the Aryan invasion

from the N., but they adopted the higher civilization of the Aryans. The Tamil language is spoken not only in South India and Ceylon, but also by a majority of the Indian settlers in places further E., as Peru and Penang. There is an extensive literature, the greater part of it in verse.

**Tammany, Society of, or Columbian Order**, formed in New York city in 1789, as a counterweight to the so-called "aristocratic" Society of the Cincinnati; deriving its name from a noted friendly Delaware chief named Tammany, who had been canonized by the soldiers of the Revolution as the patron saint of America. The grand sachem and 13 sachems were intended to typify the President and the governors of the 13 original States.

The society was at first a social organization, but about 1800 entered politics. Tammany was for a short time allied with DeWitt Clinton, but they separated and Tammany came to be recognized as the regular Democratic organization of New York City (now of Manhattan and the Bronx boroughs), a position which it still holds.

Strictly speaking the Tammany Society is wholly distinct from the Tammany Organization, the former being still in name at least a benevolent institution, while the organization is wholly political, and includes all "regular" Democrats in the city.

**Tampa**, city, port of entry, and capital of Hillsboro county, Fla.; on Hillsboro river, Tampa bay, and the Plant System and other railroads; 30 miles E. of the Gulf of Mexico; is a popular health and winter resort; has large orange, lemon, phosphate, and fishery interests; contains many hotels and cigar factories, and in the Spanish-American war was the chief mobilizing point for the American army. Pop. (1930) 101,161.

**Tanagers**, a family of the Passeriformes, or perching birds, containing nearly 400 species; the bill is usually conical, more or less triangular at the base, with the cutting edges not much inflected, and frequently notched near the tip of the upper mandible. They are mostly birds of small size, the largest barely exceeding a song thrush.

## Tanana

and the smallest being hardly four inches in length. With the exception of a few species which visit North America in summer, the tanagers are confined to Central and South America and the West Indies. Some genera of tanagers are remarkable for their beauty of plumage, which is sometimes confined to the male sex, and sometimes possessed by the female.

**Tanana**, a rich gold digging settlement of Alaska, on the Yukon opposite the mouth of the Tanana.

**Tancred**, a hero of the first crusade; born in Sicily in 1078; in 1098 assumed the cross, and with his cousin Bohemund set out on the crusade. At Dorylaion (July 4, 1097) his bravery saved the camp of priests and women; his banner was the first to float from the towers of Tarsus, though Baldwin's jealousy dislodged it thence. In the siege of Antioch he slew, say chroniclers, 700 infidels; with Robert of Normandy he first set foot in the Holy City July 15, 1099. Appointed by Godfrey de Bouillon prince of Galilee, he founded churches in Nazareth, in Tiberias, and on Mount Tabor, and helped at Ascalon to guard the new Christian kingdom against the Fatimite caliph. He was busy with plans for bringing the Syrian chieftains under his sway, when he died in Antioch of a wound received in battle (1112).

**Taney, Roger Brooke**, an American statesman; born in Calvert co., Md., March 17, 1777; was graduated at Dickinson College in 1795. During the war with Great Britain he led the wing of the Federal party that upheld the policy of the government. In 1827 he became attorney-general of Maryland and in December, 1831, succeeded John M. Berrien as attorney-general of the United States. He was appointed Secretary of the Treasury under President Jackson on Sept. 24, 1833, but was forced to resign the next year, owing to his action with regard to the removal of the treasury deposits. On Dec. 26, 1835, however, he was nominated Chief-Justice of the United States and confirmed by the United States Senate on March 15, 1836. While in this office he rendered decisions on many important cases, notably those of Dred Scott, and Sherman M. Booth, both bearing on the

## Tanner

Fugitive Slave Law. He died in Washington, D. C., Oct. 12, 1864.

**Tangier**, a seaport of Morocco, on the Atlantic, near the Strait of Gibraltar. It stands on two heights near a spacious bay, and rises from the sea in the form of an amphitheatre, defended by walls and a castle. The harbor is a mere roadstead. Pop. about 20,000.

**Tanistry**, a mode of tenure among various Celtic tribes, according to which the tanist or holder of lands or honors had only a life estate in them, and his successor was appointed by election. According to this system the right of succession was hereditary in the family, but elective in the individual. The primitive intention seems to have been that the inheritance should descend to the most worthy of the blood and name of the deceased. This was in reality giving it to the strongest, and the practice often occasioned bloody wars in families.

**Tank Worm**, the Guinea worm in a certain stage of its development, when the young have been set free from the body of their parent and inhabit the "tanks" so common in India. It is supposed that it penetrates the body of bathers when it is very minute.

**Tanner, Benjamin Tucker**, an American clergyman; born of African parents in Pittsburg, Pa., Dec. 25, 1835; studied theology in the Western Theological Seminary in Holland, Mich.; was editor of the "Christian Recorder" for 16 years; founded the A. M. E. "Church Review," which he edited for four years; elected A. M. E. bishop in 1888.

**Tanner, Henry S.**, an American cartographer; born in New York city in 1786; settled in Philadelphia in early life, but returned to New York in 1850, and engaged in map making. His maps include the "Map of the United States and Mexico"; "Map of the United States of America," etc. He was also the author of "Description of the Canals and Railroads of the United States," and other topographical works. He died in New York city in 1858.

**Tanner, James**, an American lawyer; born in Richmondville, N. Y., April 4, 1844; enlisted as a private in the 87th New York Volunteers in



1861; was promoted corporal; and took part in the second battle of Bull Run where he lost both his legs. He was taken prisoner in the engagement but was soon paroled and in 1866 returned to New York; studied law; and was admitted to the bar in 1869. He then accepted a place in the New York custom house, was promoted through the various grades to deputy collector, and in 1877 became deputy tax collector under General Arthur. He held that office till 1885, and in 1904 was appointed Register of Wills in the District of Columbia.

**Tannhauser**, or **Tanhauser**, in old German legend, a knight who gains admission into a hill called the Venusberg, in the interior of which Venus holds her court, and who for a long time remains buried in sensual pleasures, but at last listens to the voice of the Virgin Mary, whom he hears calling on him to return. The goddess allows him to depart, when he hastens to Rome to seek from the Pope (Pope Urban) absolution for his sins. The Pope, however, when he knows the extent of the knight's guilt, declares to him that it is as impossible for him to obtain pardon as it is for the wand which he holds in his hand to bud and bring forth green leaves. Despairing, the knight retires from the presence of the pontiff, and enters the Venusberg once more. Meanwhile the Pope's wand actually begins to sprout, and the Pope, taking this as a sign from God that there was still an opportunity of salvation for the knight, hastily sends messengers into all lands to seek for him. But Tannhauser is never again seen. The Tannhauser legend has been treated poetically by Tieck, and Richard Wagner has adopted it (with modifications) as the subject of one of his operas.

**Tansy**, a genus of Compositæ, numbering about 50 species of strong-scented herbs, often shrubby below, with alternate usually much-divided leaves, and solitary or corymbose heads of rayless yellow flowers. The genus is represented in North America, Europe, North and South Africa, temperate and cold Asia. Common tansy has long had a reputation as a medicinal herb, causing it to be much grown in gardens in the past.

**Tantalidæ**, a family of grallatorial birds, the chief of which inhabit tropical latitudes, living almost entirely on the swampy banks of rivers and lakes. The genus *Tantalus* is characterized by having the head in the adult entirely destitute of feathers. It includes the wood ibis of the Southern States. Among the American species are the red or scarlet ibis of South America and the West Indies, accidental in the United States; and the white ibis, or white curlew of the



TANSY.

South Atlantic and Gulf States, rarely N., which is 25 inches long, the wing 11, and the bill 7 inches; color white. This species feeds largely on crawfish. The sacred ibis, or Egyptian ibis is an African bird, 30 inches in length, and covered with white and black plumage. It was one of the birds worshipped by the ancient Egyptians.

**Tantalus**, in Greek mythology, a King of Lydia, son of Zeus. He was father of Niobe and Pelops, by Dione, one of the Atlantides, and is represented by the poets as punished in Hades with an insatiable thirst, and placed up to the chin in the midst of a pool of water, which flowed away as

## Tantalum

soon as he attempted to taste it. Other tantalizing punishments were inflicted for his lasciviousness, impiety, cruelty and thefts.

**Tantalum**, a metallic element discovered in 1803, but only utilized since 1903, through improved processes, for boring tools and incandescent light threads.

**Taoism, or Taonism**, one of the three religions of China. Its founder, Laotse, lived, according to tradition, in the 6th century B. C. Tao is a word meaning "way." It would seem that Tao represented the course which Laotse thought a man should pursue in order to overcome evil. The whole teaching was vague and unsatisfactory; but its followers made a great advance on those that had preceded them, by believing firmly that ultimately good would gain the victory over evil, and by insisting that good should be returned for evil, as the sure way to overcome it. Taoism was largely modified by Buddhism, some of the doctrines and practices of which it adopted; but it still adheres to its old superstitions, though in its treatises it enjoins much of the Confucian and the Buddhistic morality.

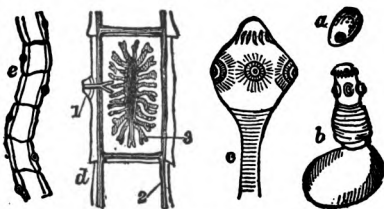
**Tapestry**, an ornamental textile used for the covering of walls and furniture, and for curtains and hangings. In its method of manufacture it is intimately related to Oriental carpets, which are made in precisely the same way as certain kinds of tapestry, the only distinction being that carpets are meant for floor-coverings alone. Fine storied tapestries are, however, much more elaborate and costly than any carpets, and they have altogether different artistic pretensions.

The art of tapestry-working is of high antiquity. It came to Europe from the East, and so well was this recognized that during the Middle Ages the fabric was generally known as Sarrazinois. So far as is known the art of high warp tapestry weaving was first practised in Flanders toward the end of the 12th century, and it flourished in the rich and prosperous towns of Arras (whence the name of "arras" applied to tapestry), Valenciennes, Lille, Brussels, etc., while the famous Gobelin factory was established in Paris by Louis XIV. in 1667.

## Tapeworm

Tapestries—especially the high warp storied varieties—are the textiles of kings. In earlier times the monarchs of Europe resorted to the Netherlands for pieces for the decoration of their palaces; and when the manufacture came to be more disseminated it was almost entirely under State supervision and control that the work was carried on. The pieces made were almost exclusively reserved for royal use, and to be given as presents in connection with great State celebrations and functions. The very foremost artists devoted their best energies to the production of designs and full-sized cartoons for the guidance of the weavers; and it was as patterns for tapestry that Raphael produced the immortal series of cartoons illustrating the acts of Christ and the Apostles which were executed in Brussels for the Sistine Chapel. Seven of these cartoons, purchased by Charles I. under the advice of Rubens, are now in South Kensington Museum.

**Tapeworm**, an intestinal worm, *Tania solium*, in form somewhat resembling tape. Its length is from 5 to 15 yards, and its breadth from two lines at the narrowest part to four or



TAPEWORMS.

a, ovum with contained embryo; b, cysticercus longicollis; c, head of *tania solium* (enlarged); d, a single segment or proglottis magnified; 1, generating pore; 2, water vessels; 3, dendritic ovary; e, portion of tapeworm, natural size, showing the alternating arrangement of the generative pores.

five at the other or broader extremity. At the narrow end is the head, which is terminated anteriorly by a central rostellum, surrounded by a crown of small recurved hooks, and behind them four suckorial depressions; then follow an immense number of segments,

## Tapioca

each full of microscopic ova. The segments are capable of being detached when mature, and reproducing the parasite. There is no mouth; but nutrition appears to take place through the tissues of the animal, as algae derive nourishment from the sea water in which they float. The digestive system consists of two tubes or lateral canals, extending from the anterior to the posterior end of the body, and a transverse canal at the summit of each joint.

The tapeworm lives in the small intestines of man, affixing itself by its double circle of hooks. When the reproductive joints or proglottides become mature, they break off and are voided with the stools. They may get into water, or may be blown about with the wind, till some of them are at length swallowed by the pig, and produce a parasite which causes measles in the pig. When the measly pork is eaten by man, a tapeworm, the ordinary, appears in his intestines. This species mainly affects the poor, who are the chief pork-eaters. Called more fully the pork tapeworm. The beef tapeworm has no coronet of hooks on the head. The segments are somewhat larger than in the ordinary tapeworm. It is 15 to 23 feet long. The cysticercus of this species forms measles in the ox, and is swallowed by man in eating beef. It chiefly affects the rich. The broad tapeworm, *Bothriocephalus latus*, is 25 feet long by nearly an inch broad, and chiefly affects the inhabitants of Switzerland, Russia and Poland.

**Tapioca**, the powdered root or rhizome of *Manihot utilisima*. The root, which is about 30 pounds in weight, and is full of a poisonous juice, is washed, rasped, or rasped and grated, to a pulp. This, being well bruised and thoroughly washed, is heated on iron plates, by which process the poison is drawn off. The powder, when dry, consists of pure starch, and is baked into bread by the natives of Central America. In the United States and Europe it is generally made into puddings, and forms a light and nutritious diet. Pearl tapioca is made from prepared grain.

**Tapir**, any individual of the genus *Tapirus*. The South American tapir is about the size of a small ass, but

## Tappen

more stoutly built, legs short, snout prolonged into a proboscis, but destitute of the finger-like process which is present in the elephant's trunk. The skin of the neck forms a thick rounded crest on the nape, with a short, stiff mane. It is plentiful throughout South America, ranging from the Isthmus of Darien to the Straits of Magellan.



AMERICAN TAPIR.

**Tappen, Benjamin**, an American naval officer; born in New Orleans, La., April 10, 1856; was graduated at the United States Naval Academy, June 20, 1876. He served on the "Raleigh," on which he took part in the battle of Manila Bay, May 1, 1898. During the attack on Manila city, in August, 1898, he commanded the launch "Barcelo," took her through the breakers and captured a Spanish battery. For this he was advanced five numbers, Aug. 23, 1898; was commissioned lieutenant-commander July 1, 1899. He was assigned to duty in the branch hydrographic office in Baltimore, Md., March 26, 1900.

**Tappen, Frederick D.**, an American financier; born in New York city Jan. 29, 1829; was graduated at the University of New York in 1849, and in the following year became specie clerk in the National bank of New York, now the Gallatin National bank, of which he was elected president in 1868. He was president of the New York Clearing House Association for many years, and was exceptionally instrumental in enabling the banks and large business concerns

## Tar

of the city to successfully meet several great financial panics. He died in Lakewood, N. J., Feb. 28, 1902.

**Tar**, a product of the destructive distillation of various organic substances; but the tars of commerce are obtained: 1st, from the distillation of coal, etc., for gas (gas tar or coal tar), and 2d, from the distillation of wood (wood tar). Gas or coal tar, which was formerly regarded as a troublesome and almost useless by-product of the gas manufacture, is now a substance of so much value that it is second only in importance to the gas itself. Its value in recent times has arisen almost entirely from the fact that it is the source of the wide range of important dyeing substances, which, derived from aniline, phenol and anthracene respectively, may all be classed as tar colors.

Wood tar is obtained as a by-product in the destructive distillation of wood for the manufacture of pyroligneous acid (wood vinegar), and methyl alcohol (wood spirit). It is in the same way obtained in Northern Europe in connection with the preparation of wood charcoal. In addition to its various uses in the arts of coating and preserving timber and iron in exposed situations, and for impregnating ships' ropes and cordage, it has various applications for external use in medicine owing to its antiseptic properties.

**Tara Fern**, a large species of bracken, the rhizome of which was one of the principal articles of food of the Maoris before the settlement of New Zealand by the British colonists. The roots, about an inch in circumference, were cut in pieces, dried, and stacked. For use the root was steeped in water, dried in the sun, and then roasted. Good flour was obtained from it by beating on a stone.

**Tarantula**, a large spider, with a body about an inch in length; its bite was formerly supposed to produce Tarantism, and doubtless in some cases, produces disagreeable symptoms. It is a native of Italy, but varieties, or closely allied species, are found throughout the S. of Europe. The tarantulas of Texas and adjacent countries are large species of *Mygale*. Also, a dance, or the music to which it is performed.

## Tare

**Taraxacin**, the bitter principle of dandelion root, extracted from the milky juice by boiling with water and allowing the concentrated decoction to evaporate. It forms soluble warty crystals of a sharp, bitter taste.

**Tarbell, Ida Minerva**, an American writer; born in Erie co., Pa., Nov. 5, 1857; was graduated at Allegheny College; studied in Paris 1891-1894; was associate editor of "The Chautauqua" (1883-1891), "McClure's Magazine" (1894-1906), "American Magazine" (1906-); and, besides several "Lives," published a notable "History of the Standard Oil Co." (2 vols., 1904).



TARANTULA.

**Tare**, the common name of different species of a genus of leguminous plants, known also by the name of vetch. There are numerous species and varieties of tares or vetches, but that which is found best adapted for agricultural purposes is the common tare, of which there are two principal varieties, the summer and winter tare. They afford excellent food for horses and cattle, and hence are extensively cultivated throughout Europe. One species is found in the fields in United States.

**Tare**, an allowance or deduction made on the gross weight of goods sold in boxes, barrels, bags, etc., for the weight of the boxes, etc. Tare is said to be real when the true weight



## Target

of the package is known and allowed for; average, when it is estimated from similar known cases; and customary, when a uniform rate is deducted.

**Target**, a shield or buckler of a small size, circular in form, cut out of ox-hide, mounted on light but strong wood, and strengthened by bosses, spikes, etc.; often covered externally with a considerable amount of ornamental work. Also, the mark set up to be fired at in archery, musketry, or artillery practice, or the like.

**Target Practice.** The use of stationary targets for practice in the United States army has given place to that of appearing and disappearing targets, which stimulate activity and increase the skill of the gunners. American soldiers, and particularly those of the regular service, have the reputation of being the best shots in the world, the latter having had much experience in snap shooting by reason of their service on the plains.

**Targum**, the general term for the Aramaic versions—often paraphrases—of the Old Testament, which became necessary when, after and perhaps during the Babylonian Exile, Hebrew began to die out as the popular language, and was supplanted by Aramaic. The targum, long preserved by oral transmission, does not seem to have been committed to writing until the first centuries of the Christian Era. There were different Targums, all of which taken together form a paraphrase of the whole of the Old Testament except Nehemiah, Ezra, and Daniel.

**Tariff**, a list or table of goods with the duties or customs to which they are liable, either on exportation or importation; a list or table of duties or customs to be paid on goods imported or exported, whether such duties are imposed by the government of a country or are agreed on between the governments of two countries having commerce with each other. The scale of duties depends on the supply and demand of goods, the interests and wants of the community, etc., and is therefore constantly changing.

The tariff legislation of the United States has been constantly fluctuating, and has grown yearly in importance

## Tariff

as a question of foreign policy. The most noted tariff bill ever passed by Congress was that taking its name from the then chairman of the Committee on Ways and Means, the late President McKinley. This tariff imposed high duties on imports, some specific and others ad valorem. It was repealed in 1894 by the passage of the Wilson bill, which became a law by the refusal of President Cleveland to sign or veto it. On the tariff question the nation has generally been pretty evenly divided, or with but a slight preponderance in favor of a high protective duty. Of former tariff measures that proposed in 1833 by Henry Clay, of Kentucky, and known as the compromise tariff, occupies the most prominent place in American history.

At the present time, though Great Britain is regarded as a free-trade country, yet on her tariff are listed 19 articles of import, from which she derives an average of about 20 per cent. of her total revenue. The British tariff is based not on an ad valorem tax, but depends entirely on a specific impost, in some cases modified by a range of price between the highest and lowest figures, which it sets for an article. Thus for spirits worth a certain amount per gallon, the tax is so much per barrel, while for spirits of the next higher grade (according to price per gallon) a higher duty per barrel is collected. The question of a protective tariff was an issue in the United States between the two great political parties, and largely figured in the presidential contest of 1904 and 1908. Public opinion irrespective of party seems to be favorable to this method of raising revenue, and as there is use for all the revenue raised, tariff discussion is largely academic in the United States. In England the issue has been accentuated in 1903 by the stand of Joseph Chamberlain, the great English statesman, favored by Premier Balfour, in behalf of "fair trade," the English equivalent for protective duties. "English Free Trade; its Foundation, Growth and Decline," by Henry Mann, 1888, which is out of print, but in most large libraries, tells the story of the struggle for "fair trade" in England up to the date of publication.



**Tarkio College**, a coeducational institution in Tarkio, Mo.; founded in 1883; under the auspices of the United Presbyterian Church.

**Tarpan**, the wild horse of Tartary, belonging to one of those races which are by some authorities regarded as original. They are not larger than an ordinary mule. The color is invariably tan or mouse, with black mane and tail. During the cold season their hair is long and soft, but in summer it falls much away. They are sometimes captured by the Tartars, but are tamed with difficulty.

**Tarpon**, or **Tarpum**, the Megalops atlanticus, a herring-shaped fish, found on the southern coasts of the United States and in the West Indies. It reaches a length of 5 or 6 feet; from a hundred to several hundred pounds weight, and is of giant strength.

**Tarquinius, Lucius**, surnamed Priscus (the first or the elder), in Roman tradition the 5th King of Rome. According to Livy he made war with success on the Latins and Sabines, from whom he took numerous towns. Tarquinius also distinguished his reign by the erection of the Cloaca Maxima, the Forum, the wall round the city, and, as is supposed, he commenced the Capitoline Temple. After a reign of about 36 years he was killed by assassins employed by the sons of Ancus Martius in 578 B. C.

**Tarquinius, Lucius**, surnamed Superbus ("the proud"), the last of the legendary kings of Rome, was the son of Lucius Tarquinius Priscus. Tarquin, on reaching man's estate, murdered his father-in-law, King Servius Tullius (the date usually given for this event is 534 B. C.), and assumed the regal dignity. He abolished the privileges conferred on the plebeians; banished or put to death the senators whom he suspected, never filled up the vacancies in the senate, and rarely consulted that body. He continued the great works of his father and advanced the power of Rome abroad both by wars and alliances. By the marriage of his daughter with Octavius Mamilius of Tusculum, the most powerful of the Latin chiefs, and other political measures, he caused himself to be recognized as the head of the Latin confederacy. After a

reign of nearly 25 years a conspiracy broke out by which he and his family were exiled from Rome (510 B. C.). He died in 495 B. C.

**Tarr, Ralph Stockman**, an American scientist; born in Gloucester, Mass., Jan. 15, 1864; became Professor of Dynamic Geology and Physical Geography at Cornell University in 1897.

**Tarrytown**, a village in Westchester county, N. Y.; on the Hudson river and the New York Central & Hudson River railroad; 25 miles N. of New York city; is the site of the Philipse Manor House (1683), Dutch Church (1699), Irving Institute, Tarrytown Lyceum, the "Castle" School, and a Revolutionary Soldiers' Monument; is near Washington Irving's "Sleepy Hollow" home; and is historically noted as the scene of the capture of Major André (1780) Pop. (1930) 6,841.

**Tarsus**, the ancient capital of Cilicia, and one of the most important cities in Asia Minor; on the Cydnus river; 12 miles from the sea in the midst of a productive plain. It was a great emporium for the traffic carried on between Syria, Egypt, and the central region of Asia Minor. Tarsus, which was sacred to Baal Tars, and is thought by some to have been founded by Sennacherib, 690 B. C., was probably of Assyrian origin, but the first historical mention of it occurs in the "Anabasis" of Xenophon, where it figures as a wealthy and populous city, ruled by a prince tributary to Persia. In the time of Alexander the Great it was governed by a Persian satrap; it next passed under the dominion of the Seleucidae, and finally became the capital of the Roman province of Cilicia (66 B. C.). Under the early Roman emperors Tarsus was as renowned for its culture as for its commerce, Strabo placing it, in respect to its zeal for learning, above even Athens and Alexandria. The natives were vain and luxurious; a Moslem general estimated their number at 100,000. Weaving goats' hair was the staple manufacture. It was the birthplace of the apostle Paul, who received the greater part of his education there. Gradually, during the confusions that accompanied the decline of the Roman and Byzantine

power, it came into the hands of the Turks, and fell into comparative decay; but even yet this modern, squalid and ruinous city, under the name of Tarso or Tersus, has a permanent population of 7,000, and a pop. of 30,000 in winter, and exports corn, cotton, wool, gall nuts, wax, goats' hair, skins, hides, etc.

**Tartan**, woolen cloth, cross-barred with stripes of various colors, forming panes, and constituting the peculiar patterns which are said to have formerly distinguished the different Scotch Highland clans, each clan having its own peculiar pattern. The term is also applied to the checkered patterns themselves in which the cloth is woven, and which are frequently printed or painted on various surfaces, as paper, wood, etc.

**Tartar**, the substance called also argal, or argol, deposited from wines incompletely fermented, and adhering to the sides of the casks in the form of a hard crust. Tartar of the teeth is an earthy-like substance which occasionally concretes on the teeth and is deposited from the saliva. It consists of salivary mucus, animal matter and phosphate of lime.

**Tartaric Acid**, the most important of vegetable acids, occurs in many fruits, especially the grape. During fermentation the juice of the grape deposits the substance known in commerce as tartar or ergol. This substance, essentially the bitartrate of potash, is hardly soluble in cold water, but may be crystallized by cooling from its solution in boiling water. Thus purified it is known as cream of tartar.

**Tartars**, or **Tatars**, originally certain Tungusic tribes in Chinese Tartary, but extended to the Mongol, Turkish, and other warriors, who under Genghis Khan and other chiefs were the terror of the European Middle Ages. The term is used loosely for tribes of mixed origin in Tartary, Siberia, and the Russian steppes, including Kazan Tartars, Crim Tartars, Kipchaks, Kalmucks, etc., and has no definite ethnological meaning. In the classification of languages Tartaric is used of the Turkish group.

**Tartary**, properly Tatar, the name under which, in the Middle Ages, was

comprised the whole central belt of Central Asia and Eastern Europe, from the Sea of Japan to the Dnieper, including Manchuria, Mongolia, Chinese Turkestan, Independent Turkestan, the Kalmuck and Kirghiz steppes, and the old khanates of Kazan, Astrakhan, and the Crimea, and even the Cossack countries; and hence arose a distinction of Tartary into European and Asiatic. But latterly the name Tartary had a much more limited signification, including only Chinese Turkestan and Western Turkestan. It took its name from the Tatars or Tartars.

**Tashkend**, or **Tashkent**, the capital of Russian Turkestan; 300 miles N. E. of Samarcand; on a small river which empties itself into the Syrdaria or Jaxartes. It consists of an ancient walled city and a new European quarter with broad streets bordered by canals and avenues of trees. The Russian citadel lies a little to the S. There are extensive military stores, official buildings, Russian schools of all grades, an observatory and geographical society, Russian and Kirghiz newspapers, and a brisk trade with Russia and other parts of Central Asia. It is connected with the European system of telegraphs, and has manufactures of silk, leather, felt goods, and coarse porcelain. Once capital of a separate khanate, Tashkend was in 1810 conquered by Khokand, and since 1868 has been Russian. Pop. (1926) 323,613.

**Tasimeter**, an instrument, invented by Edison, for measuring very minute variations of pressure, temperature, moisture, etc. It is founded on the discovery of the inventor that carbon, when pressed in the form of a button, affects the electric currents passing through the same, and offers a resistance which diminishes with the pressure. So sensitive is the carbon that, when this pressure varies to the amount of one millionth part of an inch, the variation in the electric current passing through it will cause a proportional deflection of the galvanometer needle. The practical uses of the instrument are said to be: (1) Warning to vessels of the approach of icebergs, by exposure to the air or to the water cooled by their vicinity; (2) Indicating otherwise inappreci-

able weights; (3) Recording pressures of air in motion, thus affording a useful addition to the anemometer.

**Tasmania**, formerly Van Diemen's Land, an island in the Southern Ocean, 100 miles S. of Australia, from which it is separated by Bass Strait; greatest length, 186 miles; mean breadth, 165 miles; area, 26,215 square miles; pop. (1921) 213,877. The capital is Hobart on the S. coast; pop. 52,163.

The island may be roughly described as heart-shaped. The coasts, which are all much broken and indented, have some excellent harbors. The islands belonging to Tasmania are numerous, the principal being the Furneaux group, on the N. E. extremity. Tasmania is traversed by numerous mountain ranges. The climate is very mild. Mount Wellington is frequently covered with snow in the summer months; but at Hobart, in its immediate vicinity, snow never falls. In December, January and February, the summer months, during which there is little rain, the average temperature is 62°, extreme 100° to 110. The mean temperature throughout the year is about 55.4°.

Much of the soil of Tasmania is well adapted for cultivation. Wheat, oats, barley, potatoes, peas, beans, and hops are largely cultivated, and the fruit includes grapes, cherries, plums, quinces, mulberries, peaches, apricots, walnuts, filberts, almonds, etc. Fruit-preserving forms an important industry.

Among the minerals are gold, silver, copper, iron, tin, coal, freestone, limestone, and roofing slate. Smelting works have been erected at Hobart for the iron which abounds in that district.

The staple export from Tasmania is wool, and the other articles include gold, tin, timber, grain, fruit, hides, and bark.

The constitution is settled by the Act 18 Victoria (1854), supplemented by acts passed in 1871 and 1885, by which are constituted a legislative council and house of assembly, called the Parliament of Tasmania. The legislative council is composed of 18 members, and the house of assembly of 30 members, the latter being elected for three years. The governor is ap-

pointed by the crown, and he has a responsible cabinet of four official members, the colonial secretary, treasurer, attorney-general, and minister of land and works.

Tasmania was discovered in 1642 by Abel Jansen Tasman, who named it after Van Dieman, the governor of the Dutch East Indies. In 1797 Bass discovered the strait which has been called after him. The first settlement was made in 1803 by a guard with a body of convicts, who settled at Restdown, but afterward removed to the site now occupied by Hobart. Till 1824 Tasmania was a dependency of New South Wales, but in that year it was made an independent colony. When gold was discovered in Australia in 1851, a rapid emigration from Tasmania to Australia began to take place. This naturally gave a great check to its prosperity, but for years it has now been fairly prosperous and progressing with moderate rapidity.

**Tasso, Torquato**, an Italian epic poet, born in Sorrento, Italy, March 11, 1544. At the age of 16 he was sent to the University of Padua to study law, but at this time, to the surprise of his friends, he produced the "Rinaldo," an epic poem in 12 cantos. The reputation of this poem procured for Torquato an invitation to the University of Bologna, which he accepted. Here he displayed an aptitude for philosophy, and began to write his great poem of "Gierusalemme Liberata" (Jerusalem Delivered). He was introduced to the court of Alfonso II. of Ferrara. Here in 1573 he brought out the "Aminta," a pastoral, which was represented at the court. In 1575 he completed his epic of "Gierusalemme Liberata."

About this time he became a prey to morbid fancies, and so outrageous did his conduct become that he was seized and confined as a madman in the hospital of St. Anne at Ferrara. Here he remained from 1579 to 1586, till he was released at the solicitation of Vincent di Gonzaga. Finally, in 1595 he proceeded to Rome at the request of the Pope, who desired him to be crowned with laurel in the capitol, but the poet died on April 25, while the preparations for the ceremony were being made. Tasso wrote numerous poems, but his fame rests

chiefly on his "Rime," or lyrical poems, his "Aminta," and his "Gierusalemme Liberata" (translated into English by Fairfax). His letters also are interesting.

**Taste**, one of the special senses. The parts of the mouth affected by sapid substances are the surface and sides of the tongue, the roof of the mouth, and the entrance to the pharynx. The mucous membrane is invested by stratified squamous epithelium, which, over the surface of the tongue, covers little vascular projections termed papillæ.

Into these trenches Ebner's glands secrete a watery albuminous fluid, keeping them perpetually moist and free from foreign particles. In the epithelium lining these trenches curious little bodies called taste bulbs are lodged; the parts which are probably more especially concerned in taste.

While it is almost certain that these taste bulbs are organs of taste, it is not equally certain that other parts are not involved. The reason for this belief is that in the front and sides of the tongue these taste bulbs are few in number, while in these regions taste sensations are pretty acute. It is therefore not improbable that the nerves which abundantly pass into the epithelium of the tongue end in other ways, but unfortunately we are at present much in the dark concerning their exact method of termination. It is to be noted that the protective layer of the mucous membrane is thin, and might conceivably be permeated readily by the juices of the mouth, which would reach the lower cells into which some of the nerves certainly pass. From the mucous membrane of the mouth the impressions produced by sapid substances are carried probably by fibers belonging to the fifth nerve. These fibers, though they belong to this nerve, are found to run in the greater part of their course in other nerve trunks—viz. the glosso-pharyngeal, to the back of the mouth and tongue, and the chorda tympani to the front of the tongue.

**Tatian**, a heresiarch of the 2d century, was born in Assyria about 120, and died about 172. He was educated in Greek philosophy; travelled extensively; caused himself to be initiated in the rites of various religions;

and eventually embraced Christianity. Tatian became a disciple of Justin, after whose martyrdom he left Rome and journeyed into Mesopotamia, where he preached certain Gnostic and heretical doctrines. He seems to have disbelieved in the divinity of Christ, and his teachings inculcated abstinence from wine, from animal flesh, and from marriage.

**Tattie**, a screen made of split bamboo placed vertically in doors and windows in India (the window frames being temporarily taken out) while the dry hot wind is blowing during April, May, and June. A native with a pail of water stands outside drenching the mat, so that every interstice has a drop of water. As the dry wind blows into the house through these drops, evaporation takes place with such speed as to cool the wind, which enters the house at a temperature quite refreshing. A single pane of glass is sometimes placed in the window tattie to afford the inmates of the room a small amount of light. When the hot season is succeeded by the rainy season, the tatties are removed, as the wind is already saturated with moisture, and the temperature does not require to be artificially reduced.

**Tattnaill, Josiah**, an American military officer; born in Bonaventura, Ga., in 1762; went to England with his parents who were Loyalists, on the outbreak of the Revolutionary War, but ran away from home in 1770; returned to Georgia, and joined the army under Gen. Nathanael Greene. He was made colonel of militia in 1793 and Brigadier-General in 1800; took an active part in the military affairs in the State; and was United States Senator from Georgia in 1796-1799 and governor of that State in 1800. He died in Nassau, New Providence, June 6, 1803.

**Tattnaill, Josiah**, an American naval officer; born near Savannah, Ga., Nov. 9, 1795. He served in the War of 1812; in the Algerine War; in the West Indies; and in the Mexican War. In 1857 he was appointed flag-officer of the Asiatic station. While in the East he violated the law of neutrality by aiding the British in an attack on a Chinese fort, but in this was sustained by his government.

## Tattooing

During the Civil War he was made a captain in the Confederate navy and in 1862 succeeded Franklin Buchanan in command of the "Merri-mac." In the same year he destroyed the ship to prevent her falling into the hands of the Federals. He died in Savannah, Ga., June 14, 1871.

**Tattooing**, the custom of marking the skin with figures of various kinds by means of slight incisions or punctures and a coloring matter. The word itself is Tahitian (ta, "a mark"), but the practice is very widely spread, being universal in the South Sea Islands, and also found among the North and South American Indians, the Dyaks, the Burmese, Chinese, and Japanese, and common



TATTOOED MAORI CHIEF.

enough still among civilized sailors. It is expressly forbidden in Scripture (Lev. xix: 28), from which it is to be concluded that it was common among the ancient nations. Among the Polynesians the operation is attended with circumstances of ceremony, and the figures represented are often religious in signification or symbolic of rank, not seldom the totem or special tribal badge. The New Zealanders were distinguished by elaborate tattooing of the face, and many of their heads are preserved in European museums. As it was formerly a common custom for shipmasters to purchase these on visiting New Zealand there is little doubt that the demand stimulated the supply.

Dr. Wuttke labors to prove that tattooing is a kind of writing, but,

whatever may be the case elsewhere, its origin in Japan, where it reached its greatest perfection, is neither ceremonial nor symbolical, but merely cosmetic. Its end is to take the part of a garment or decoration, those parts of the body only being tattooed which are usually covered, and only in the cases of such workmen as runners, grooms, bearers, who work in a half-nude state. Still further, this is found only in large and civilized towns where nudity might have been objectionable. It was a substitute for clothing, but now that clothing is compulsory in Japan it has lost its meaning, and may be expected to disappear. Dr. Baelz, writing in 1885, estimated that a few years before there were in Tokyo alone as many as 30,000 men who were tattooed. The head, neck, hands, and feet are never tattooed, and it is found among the lower classes alone, and very seldom among women, and these only the dis-solute.

Among the Ainos again the tattooing is done on the exposed parts of the body, and largely practised by women. The Igorrotos in the mountainous region above Luzon tattoo elaborately, but in series of lines and curves. They ornament the hands, arms, breast, and part of the legs, the back only in one tribe, and a favorite form is a picture of the sun as a number of concentric circles on the back of the hand. According to the Archduke Joseph of Austria, tattooing is unknown among the gypsies, but this is questioned by Bataillard and Mac-Ritchie.

Many savages paint their skins as a means of protection against cold, or against the sun's heat or the bites of insects; others again attempt thus to make their aspect more terrible in war, as Cæsar tells us did the ancient Britons. Tattooing has often been employed as a badge of brotherhood in some cause, and more often still as a means of identification for slaves and criminals. The so-called branding of the letters D. and B. C. on military deserters and incorrigible characters, only given up in 1879, was merely tattooing with needles and India ink. Among the lower-class criminal population in Europe the practice of tattooing is still common, but almost exclusively among males.

## Tattooing



## Taunton

**Taunton**, city and capital of Bristol county, Mass.; on the Taunton river and the New York, New Haven & Hartford railroad; 37 miles S. of Boston; contains a Federal Building, State Hospital for the Insane, and Bristol Academy (1792); manufactures locomotives, machinery, cotton and print cloths, printing presses, nails and tacks, brick and tile, and stoves. Pop. (1930) 37,355.

**Taurus**, in astronomy, the Bull; second of the constellations; bounded E. by Gemini, W. by Aries, N. by Perseus and Auriga, and S. by Orion



TAURUS.

and Eridanus. It is composed of many small stars, but has a large one (Aldebaran) situated in the midst of a group called the Hyades. They constitute the Bull's forehead and eye. Another group falling within the limits of Taurus is that of the Pleiades. It is situated on the shoulder of the Bull. Taurus contains also the Crab cluster. Also the second sign of the zodiac.

**Taussig, Edward David**, an American naval officer; born in St. Louis, Mo., Nov. 20, 1847; was graduated at the United States Naval Academy in 1867; commissioned lieutenant-commander in 1892; served in various stations in Atlantic and Pacific waters, and in the coast survey; and was appointed commander of the

## Tavoy

"Bennington" in 1898. He took possession of Wake Island for the United States, was placed in charge of Guam on Feb. 1, 1899; and later, was assigned to duty in the Philippines and in China; he commanded the Norfolk Navy Yard in 1907; promoted rear-admiral 1908.

**Tautog**, the blackfish; common on the Atlantic coasts of temperate North America. It attains a size of from 12 to 14 pounds, and brings a high price for the table.

**Tavernier, Jean Baptiste, Baron d'Aubonne**, the son of a Dutch merchant settled in Paris; was born at Paris about 1605, and died at Moscow in 1689. Before his twenty-first year he had visited a considerable portion of Europe, and he repeatedly traveled through Turkey, Persia, India, and other eastern countries, trading as a diamond merchant. In 1669, having realized a large fortune, and obtained a patent of nobility from the French king, he retired to his estate of Aubonne, in the Genevese territories. He compiled, with the aid of French litterateurs, "Nouvelle Relation de l'Interieur du Serail du Grand Seigneur," "Six Voyages," and "Recueil de Plusieurs Relations," which have often been reprinted and translated.

**Tavistock**, a market-town, England, County of Devon, in the valley of the Tavy, 16 miles north of Plymouth. It has a guild-hall, public library, etc., and some remains of a once magnificent abbey. Copper, tin, manganese, arsenic, and iron are found in the neighborhood. It ceased to be a parliamentary borough, 1885. Pop. 7,512.

**Tavoy**, a district in the Tenasserim division of British Burma; area, 7,150 square miles. The country is mountainous, with thick forests and jungle, and the chief rivers are the Tavy and the Tenasserim. Pop. 84,988. The chief town and the headquarters of the deputy-commissioner is Tavoy, situated about 30 miles from the mouth of the river of the same name. Pop. 22,371.—There is also an Island of Tavoy, the largest and most northern of the extensive chain which fronts the Tenasserim coast. It is about 18 miles long and 2 broad, and on the eastern side there is a well-sheltered harbor called Port Owen.

**Taxation**, the act of imposing a tax or taxes on the subjects of a state or government, or on the members of a corporation or company by the proper authority, for the raising of revenue to meet the expenses of public services; the raising of revenue by means of taxes; the system by which such revenue is raised. Also a tax or assessment imposed; the aggregate of particular taxes.

**Taxel**, the American badger. The body is of a whitish color, sometimes shaded with gray or tawny. Length, excluding the tail, about 24 inches, tail 6 inches. It abounds on the plains watered by the Missouri, but its S. range is not exactly defined.

**Taxidermy**, the name given to the art of putting up natural history specimens in the dried state. It includes the skinning and stuffing of fishes, reptiles, amphibians, birds, and mammals; insects and other invertebrata. But it does not properly comprise the making of wet zoölogical preparations which are to be preserved in spirits; nor, strictly speaking, does it include the articulating of skeletons, though this is usually treated of in books on taxidermy.

**Taxin**, in chemistry, a resinous substance extracted from the leaves of the yew tree by treatment with alcohol containing tartaric acid. It is slightly soluble in water, soluble in alcohol, ether, and dilute acids, and precipitated from acid solutions by alkalies in white bulky flocks.

**Taxus**, in botany, the yew. The common yew is an evergreen tree which often attains a great size. Specimens of remarkable antiquity are commonly seen in old churchyards. The timber is extremely durable and valuable, and was formerly much used for making bows. Its leaves and young branches act as narcotic-acrid poisons when eaten by man or the lower animals.

**Taylor, Archibald Alexander Edward**, an American clergyman; born in Springfield, O., Aug. 27, 1834; was graduated at the Princeton College in 1854 and at the Princeton Theological Seminary in 1857; was ordained in the Presbyterian Church; held pastorates in Kentucky, Iowa, and Ohio in 1857-1873; was president of the University of Wooster, O., in 1873-1883; and dean and professor of

its post-graduate department in 1884-1887. He became pastor of the Westminster Church, Columbus, O., in 1892.

**Taylor, Bayard**, an American writer and traveler; born in Kennett Square, Chester co., Pa., Jan. 11, 1825. He learned the trade of a printer; contributed to various magazines; made a journey through Europe on foot in 1844-1845; on his return published "Views Afoot in Europe," and in this way gained a position on the staff of the New York "Tribune." He afterward traveled extensively. He resided in Germany for lengthened periods, was for some time United States secretary of legation at St. Petersburg, and latterly was United States minister to Germany. He died in Berlin, Dec. 19, 1878.

**Taylor, Benjamin Franklin**, an American author; born in Lowville, N. Y., July 19, 1819. He was for several years connected with the Chicago "Evening Journal." He died in Cleveland, O., Feb. 24, 1887.

**Taylor, Charles Jay**, an American artist; born in New York city, Aug. 11, 1855; was graduated at the Law Department of Columbia College, and then studied art. Many of his works have been exhibited at the Academy of Fine Arts, Chicago, the Paris Exhibition, etc.

**Taylor, George Boardman**, an American clergyman; born in Richmond, Va., Dec. 27, 1832; was graduated at Richmond College and the University of Virginia; ordained in the Baptist Church; and served as pastor in Baltimore, Md., and Staunton, Va. In 1873 he took a Baptist mission in Italy. He died in 1907.

**Taylor, Sir Henry**, an English writer; born near Durham, England, Oct. 18, 1800. At the age of 14 he entered the navy; contributed to various periodicals and accepted an appointment in the colonial office, where he remained for nearly 50 years. He died in Bournemouth, March 27, 1886.

**Taylor, Henry Clay**, an American naval officer; born in Washington, D. C., Mar. 4, 1845; entered the navy in September, 1860; promoted ensign in May, 1863, and attached to the "Shenandoah" where he continued to serve till 1864, when he was assigned

## Taylor

to special service in the "Iroquois." In November, 1893, was appointed president of the Naval War College in Newport, R. I.; and on April 16, 1894, was promoted captain. Later he was made commander of the battleship "Indiana," and took part in the destruction of Cervera's fleet. He became a rear-admiral in 1901; was appointed chief of Bureau of Navigation, April 26, 1902. Died July 26, 1904.

**Taylor, Horace A.**, an American financier; born in Norfolk, N. Y., May 24, 1831; moved to Wisconsin in 1847, and there engaged in newspaper work, banking and lumbering. He was United States consul to France; a member of the Wisconsin Senate; United States railroad commissioner; and one of the commissioners of the World's Columbian Exposition at Chicago. He became assistant secretary of the United States treasury in 1897. He died in 1910.

**Taylor, James Edward**, an American artist; born in Cincinnati, O., Dec. 12, 1839; studied at the University of Notre Dame, South Bend, Ind. He early manifested a marked taste for drawing and painting; and just after finishing his education produced a panorama of the American Revolution. In 1860 he began the study of art; but when the Civil War broke out he entered the army with the 10th New York Regiment. During his spare time in the army he made numerous sketches of camp life. In 1863 he became artist and war correspondent for Frank Leslie. In 1867 he was sent as artist with the Peace Commission to the Indians. He also accompanied President Grant's Commission to Santo Domingo. He retired from "Leslie's Illustrated Newspaper" in 1883, after which he devoted himself to painting. One of his best known works is "The Last Grand Review," made for General Sherman. Four other paintings are in the Congressional Library in Washington, D. C. He died in New York city, June 22, 1901.

**Taylor, Jeremy**, "the modern Chrysostom"; born in Cambridge, England. He studied at Caius College, and took his degree of M. A. in 1633. Shortly after he was admitted to holy orders. In 1638 he was appointed rector of Uppingham in Rutlandshire. In the civil war, Taylor took the royal

side, and so lost all his preferments. For many years he lived in retirement in Wales, busily engaged in writing books. In 1658 he went, on the invitation of the Earl of Conway, to Ireland. Immediately after the Restoration he was made Bishop of Down and Connor, which see, as also that of Dromore, he held till his death at Lisburne, Aug. 13, 1667.

**Taylor, John**, styled by himself "The King's Majesty's Water-Poet"; born in Gloucester, England, in August, 1580. After serving in 16 voyages, having been with Essex at Cadiz and the Azores, he began to ply as a waterman on the Thames. He was chiefly distinguished by the performance of several fantastic feats of rowing. The memorable incident of his life, however, was his traveling on foot from London to Edinburgh, "not carrying any money to or fro, neither begging, borrowing, or asking meat, drink, or lodging." He set out on July 14, 1618, and reached Edinburgh on Aug. 13. In 1630 Taylor published "All the Works of J. T., being Sixty and Three in Number," but before his death in 1654 he had produced 138 separate publications.

**Taylor, John**, an American Mormon; born in Winthrop, Westmoreland, England, Nov. 1, 1808; went to Toronto, Canada, in 1832, and was there converted to Mormonism. In 1838 he was made an "apostle" and settled in Missouri. For 10 years he preached his faith in France and England, but returned to the United States in 1852. He was with Joseph Smith when the latter was killed, and was himself shot four times. When Utah applied for admission to the Union he represented that territory in Congress, and on the death of Brigham Young was elected president of the Mormon Church. In 1885 he was indicted for polygamy, and in order to avoid arrest was forced to exile himself. He died July 25, 1887.

**Taylor, John Louis**, an American jurist; born in London, England, March 1, 1769; came to the United States in 1781; was educated at William and Mary College; and removed to Fayetteville, N. C., where he was admitted to the bar. He was a member of the Legislature; elected judge of the Superior Court in 1798; and be-

## Taylor

**Taylor**

came chief justice in 1808. In 1817 he was appointed a commissioner to revise the statute laws of North Carolina; and in 1818 one of the judges of the newly established court, where he served till his death in Raleigh, N. C., Jan. 29, 1829.

**Taylor, Marshall William**, an American clergyman; born in Louisville, Ky., July 1, 1846; became a teacher in Hardinsburg, Ky., under the Freedman's Bureau in 1867; entered the ministry of the Methodist Episcopal Church in Kentucky in 1870; delegate to the Ecumenical Methodist Conference in London in 1881; was editor of the "Southwestern Christian Advocate" in 1884. He died in Louisville, Ky., Sept. 11, 1887.

**Taylor, Nathaniel William**, an American clergyman; born in New Milford, Conn., June 23, 1786; studied at Yale; became pastor of a Congregational church at New Haven in 1812; and Professor of Theology in Yale College in 1822. He died in New Haven, Conn., March 10, 1858.

**Taylor, Richard**, an American military officer; born in New Orleans, La., Jan. 27, 1826; was graduated at Yale College in 1845; and entered the Mexican War with his father, Zachary Taylor. In 1861 he became colonel in the Confederate army. He was made a Brigadier-General in October, 1861; served under "Stonewall" Jackson in Virginia; was promoted Major-General; and in 1863-1864 served in the Trans-Mississippi Department. Afterward he was in command at Mobile. He died in New York city April 12, 1879.

**Taylor, Thomas**, an American scientist; born in Perth, Scotland, April 22, 1820; was educated at the Andersonian University in Glasgow, Scotland. He invented the first interleaved electrical condenser in 1841; a pneumatic battery for igniting explosives in 1850; a safety lamp for coal miners; and in 1851 came to the United States and demonstrated that electricity could be transmitted across the sea without wires. He became connected with the Ordnance Department of the army.

**Taylor, Tom**, an English dramatist; born in Sunderland, in 1817. He received his education at Glasgow Uni-

**Taylor**

versity and Trinity College, Cambridge; became professor for two years in University College, London; was called to the bar; wrote and adapted for the stage a great number of plays; was editor of "Punch." He died in Wandsworth, England, July 12, 1880.

**Taylor, William**, an American clergyman; born in Rockbridge co., Va., May 2, 1821; was a member of the Baltimore Conference in 1843; in 1849 was sent by the Missionary Society of the Methodist Episcopal Church to San Francisco where he labored till 1856, when he started on an evangelistic tour through Canada and the Eastern States. In 1862 he went abroad to continue his work. In 1872 he started the self-supporting missions in Bombay, and later engaged in similar work in Africa, of which he was made missionary bishop in 1884. He was relieved of his charge in Africa in 1896. Died May 18, 1902.

**Taylor, William Bower**, an American physicist; born in Philadelphia, Pa., May 23, 1821; was graduated at the University of Pennsylvania in 1840; admitted to the Philadelphia bar in 1844; and later studied civil engineering. He was examiner in the United States patent office in 1854-1877; and editor of the publications of the Smithsonian Institution after 1878. Died in 1895.

**Taylor, William George Langworthy**, an American educator; born in New York city May 13, 1859; was graduated at Harvard University in 1880, and at its Law Department in 1883. In 1893-1911 he was Professor of Economics at the University of Nebraska.

**Taylor, Zachary**, an American statesman, 12th President of the United States; born in Orange co., Va., Sept. 24, 1785. He was the son of a Virginia colonel, who served in the Revolutionary War. The family removed to Kentucky in 1785. In 1808 he was appointed a lieutenant of infantry, and in 1810 promoted to captain. In 1812 he was appointed to the command of Fort Harrison, near the present city of Terre Haute, Ind., which he defended with his troops from the attack of a large force of Indians, for which he was brevetted major. He served in the Black Hawk

War of 1832, and in 1837 was given full command in Florida, where he defeated the Indians in the battle of Okechobee, thereby putting an end to the Indian War. In 1840 he was given command in the Southwest. When Texas was annexed, he marched to Corpus Christi. In 1846 he was ordered to the Rio Grande, the Mexican invasion having been already planned. He established a camp opposite Matamoras. The Mexicans claimed that the Nueces was the actual Texas boundary, and the Mexican commander ordered Taylor to withdraw. Acting under orders from his government, he refused. Fearing his

founded in 1893 under the auspices of the Methodist Episcopal Church.

**Tayra**, in zoölogy, a small carnivorous mammal, about the size of a marten, from tropical America. It is easily tamed, and becomes a lively and amusing pet in captivity.

**Tchad, Chad, or Tsad, Lake**, a large fresh-water lake of Central Africa, in the Sudan, having the territories of Bornu, Kanem, and Bagirmi surrounding it; length, about 150 miles; breadth, about 100 miles; area, about 20,000 square miles, with a variable expanse according as it is the wet or dry season.



TEA PLANT, FRUIT AND FLOWER.

base of supplies at Point Isabel would be cut off, Taylor marched for that place. On the way he was attacked, and won the two victories of Palo Alto and Resaca de la Palma, on two successive days. Having been ordered to send his best troops to reinforce General Scott, he won the victory of Buena Vista, nevertheless, in 1847, with a force much inferior to the enemy's. In 1848 he was nominated by the Whig Convention for the presidency, and was elected. Inaugurated on March 4, 1849, he died in Washington, D. C., July 9, 1850.

**Taylor University**, a coeducational institution in Upland, Ind.;

**Tchernozem**, the name for a black soil in Russia of extraordinary fertility, covering at least 100,000,000 acres, from the Carpathians to the Ural Mountains, to the depth of from 4 to 20 feet.

**Tea**, the dried leaf of an evergreen shrub of the natural order Ternstroemiaceæ. It includes the China plant, and the indigenous Assam plant. At one time it was supposed that two Chinese species were grown of which one furnished the black tea and the other the green tea of commerce, but further research has shown that these species cannot be maintained. Whether the tea shrub is indigenous in China and



Japan is a doubtful question. The fact has been historically established that the culture of tea existed in China in the 4th century, and in Japan in the 9th century, and from these countries it was exclusively obtained for any other part of the globe till the time of the present generation.

The discovery of the indigenous plant in the forest country of Upper Assam was made in 1834, and since 1840 its cultivation there has taken very firm root.

**Teak**, one of the most valuable timbers known; the wood of a large deciduous tree, with leaves from 10 to 20 inches in length, and from 8 to 15 inches in breadth. The tree, which has small white flowers in panicles, is found in Central and Southern India. There are extensive forests of it in Burma and Siam, and it extends into Java and some neighboring islands. The wood is of a quiet yellow color, tending to brown, and like many other kinds of timber has a characteristic odor. It is classed as a hardwood, though it is only of medium hardness, taking, however, a good polish; and it is straight grained and strong.

**Teal**, the common name for ducks of the genus *Querquedula*, the smallest and most beautiful of the Anatidæ, or duck family, widely distributed over the world, generally frequenting rivers and lakes, and feeding, principally at night, on aquatic insects, worms, small mollusks and vegetable matter.

**Tears**, usually pure water, with saline traces; but in cases of poisoning may show the poison, and in diabetes become saccharine like the other secretions. Serving normally to moisten eyeballs, interior eyelids, and nose, they are regularly secreted in normal quantities, and disappear by the duct into the nose. In man they are also the natural outlets of strong emotion, and are secreted in greatly increased quantity; they much more constantly accompany crises of fear, anxiety, grief, affection, and keen joy than physical pain. Old age is comparatively tearless.

**Teasel**, in botany, the genus *Dipsacus*. About 150 species are known, natives of the temperate parts of the Old World and of America. The only valuable species of the order is fuller's teasel. The crooked awns are

fixed around the circumference of large broad wheels or cylinders, and woollen cloth is held against them. They raise a nap on it which is afterward cut level. A piece of fine broadcloth requires 1,500 or 2,000 of them to bring out the nap, after which the teasels are broken and useless. Steel substitutes for teasels have been tried, but ineffectually; they are not sufficiently pliant.

**Technology**, the science which treats of the arts, more particularly the mechanical. It is properly the science of the arts.

**Technology, Schools of**, institutions for the training of students in the industrial arts and exact sciences; chiefly civil, electrical, mining, and mechanical engineering.

**Tecumseh**, an American Indian; born near Springfield, O., about 1768; first appeared in a fight with Kentucky troops on Mad river in 1788. In 1805, with his brother, Ellskwatawa, he projected the union of all the Western Indians against the whites. His defeat in the battle of Tippecanoe ruined these plans, but he continued his efforts among the Southern tribes, and ultimately succeeded in inciting the Creek Nation to insurrection. He then joined the English, and commanded the Indian allies in the campaigns of 1812-1813. He was in the action of Raisin river, and after being wounded at Maguaga was made a Brigadier-General in the royal army. He led 2,000 warriors in the siege of Fort Meigs, where he saved the American prisoners from massacre; and commanded the right wing under General Proctor in the battle of the Thames, Canada, where his Indians were driven back and he himself killed Oct. 5, 1813.

**Tecumseh, The**, a single-turreted, ironclad monitor of the United States navy. During the Civil War, under the command of Captain Craven, it formed a part of Admiral Farragut's fleet in the attack on Mobile, Ala., and was sunk by a torpedo in Mobile Bay, Aug. 5, 1864.

**Te Deum** ("Te Deum laudamus," "We praise thee, O God"), a well-known Latin hymn of the Western Church. The hymn is one of the most simple, and at the same time the

## **Tegea**

most solemn and majestic, in the whole range of Latin hymnology. Its authorship is uncertain.

**Tegea**, a city of Arcadia, in ancient Greece. It took part in the battle of Plataea in 479 B. C.; was on the side of Sparta in the Peloponnesian and Corinthian wars, but opposed her at the battle of Mantinea in 362 B. C.; and joined the Arcadian Confederacy and Aetolian and Archæan Leagues.

**Teheran**, or **Tehran**, the capital of Persia; 70 miles S. of the shore of the Caspian Sea. A wall, 10 m. in circumference, with 12 gates, completed 1873, circles the city. The Shah's palace occupies the citadel. Besides his town palace, the Shah has five others in the immediate neighborhood. The bazaars, some of which are very handsome structures, are filled with every kind of native and foreign merchandise. From Teheran lines of telegraph radiate in almost every direction to the extremities of the kingdom. In 1886 a short line of railway was constructed from Teheran to Shah Abdul Azim, a shrine and place of pilgrimage about 6 miles S. of the town. Pop. (1924) Est. 300,000.

**Tehuantepec, Isthmus of**, the narrowest part of Mexico between the Atlantic and Pacific Oceans. A railroad 192 miles long, completed at a cost of \$25,000,000 in 1906, connects Coatzacoalcos and Salina Cruz, and is a rival to the Panama Canal and railroad.

**Teinds**, the name given in Scotland to tithes or the proportion of the annual produce of the earth devoted to the maintenance of the clergy.

**Telautograph**, an instrument which will at any distance transmit accurately and to the smallest detail in exact facsimile anything that may be written or drawn on the transmitting device.

**Teladiagraph, The**, an apparatus by which pictures can be reproduced by telegraph at long distances. It was used for the first time in January, 1898, in the New York "Herald" office, when a picture of Mayor Van Wyck was sent over a 6-mile circuit. Later pictures were sent to the "Herald" from Camden, N. J., and Key West, Fla. In the early part of 1899 a picture of the first gun fired at

## **Tel-el-Amarna**

Manila was telegraphed from New York to other cities over one wire.

**Teleferica**, the term applied to a method of transporting war material and other articles between mountain peaks adopted by the Italians in the World War. Heavy cables were strung from point to point, and the heaviest articles were drawn thereon across intervening chasms.

**Telegraph**, an apparatus or process for the rapid communication of intelligence between distant points. The invention of the electric telegraph is due to Samuel F. B. Morse, who, in 1832, during a homeward voyage from France to New York, conceived the idea of writing on a distant strip of moving paper by means of a pencil worked by an electro-magnet and a single conducting circuit, and who in 1844 completed the first line between Washington and Baltimore. The invention of the Leyden jar, and the discovery of the fact that the earth and intervening bodies of water may be employed as part of an electric circuit, were among the most important steps which gradually led to the completion of the present system of telegraphy. See **ELECTRIC TELEGRAPH**; for wireless system of telegraphy, **MARCONI**, and **WIRELESS TELEGRAPH**.

**Teleiconograph**, a combination of the telescope and camera. The principle is that of allowing the image transmitted by the object glass of a telescope to pass through a prism connected with the eye piece. The rays of light that would in the ordinary use of the telescope be transmitted direct to the eye are refracted by the prism, and thrown down on a table placed below the eye piece.

**Tel-el-Amarna**, or **Tell-el-Amarna**, the modern name of a mass of ruins a little to the N. of Assiout, on the E. bank of the Nile, representing the capital of the heretic Egyptian king Amenhotep IV. Here was found in 1887 a collection of tablets in Babylonian cuneiform, at a period some time before the exodus of the Israelites out of Egypt. These tablets were mainly reports from Egyptian governors of Palestine, Syria, Mesopotamia, and Babylonia, some of which implored help against the Hittites.









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